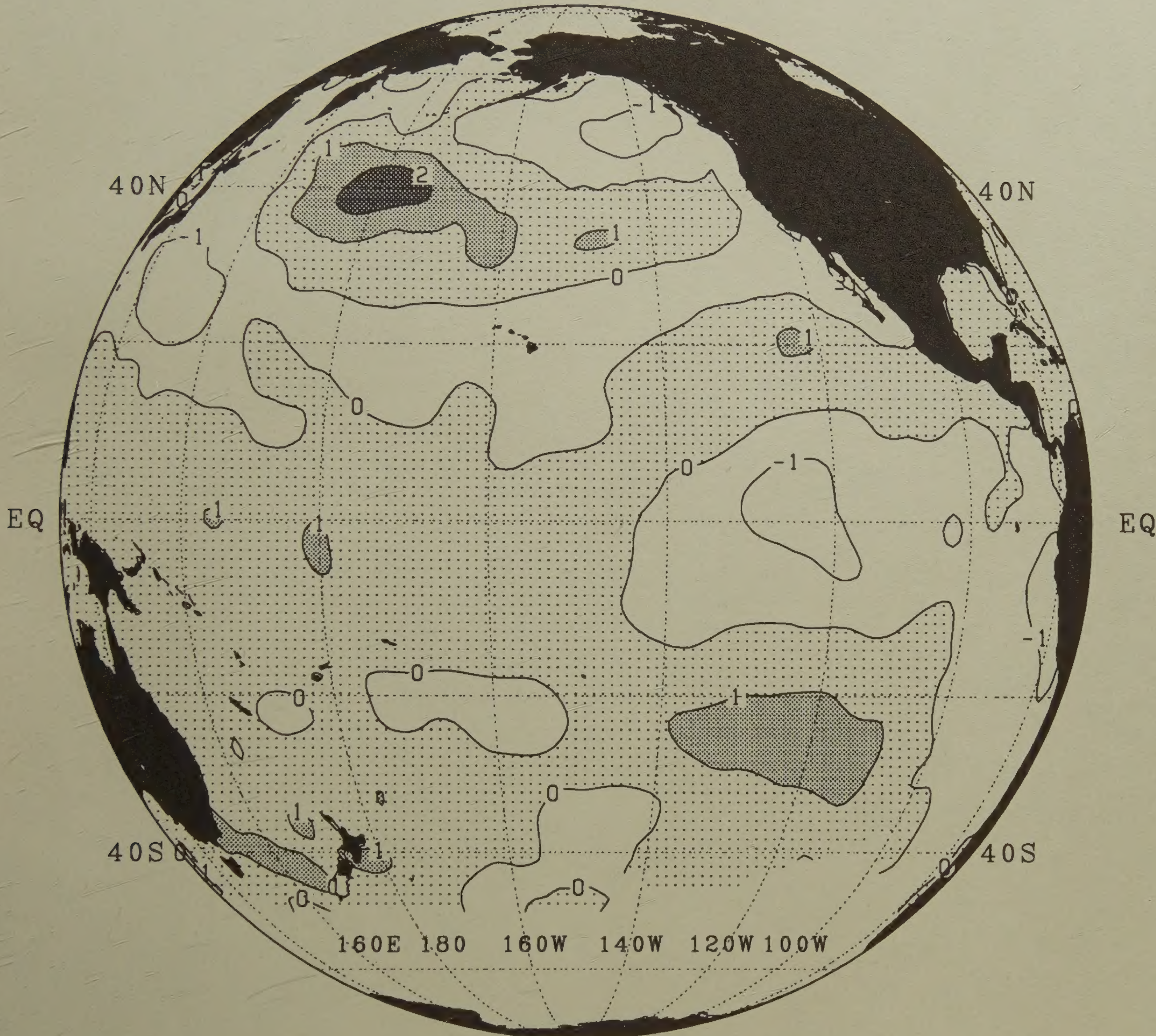
気象庁海洋月報

Monthly Ocean Report
September 2001 (No. 105)



Climate and Marine Department

Japan Meteorological Agency

気象庁 気候・海洋気象部

平成13年9月

気象庁海洋月報は、気象庁 気候・海洋気象部 海洋気象情報室で作成しています。
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Monthly Ocean Report is prepared by the Office of Marine Prediction, Climate and Marine Department, Japan Meteorological Agency.

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表紙は、2001 年 9 月の太平洋の月平均海面水温偏差図です。
陰影部は、平年より高温の海域を示しています。

The figure on the front cover shows the monthly mean SST anomalies for September 2001 in the Pacific Ocean.
Areas of positive anomalies are shaded.

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海況の特徴（２００１年９月）

日本近海の海況

海面水温は全般に平年より低く、北海道の南及び 20°N から 35°N の 140°E から 160°E にかけて－1℃を超える負偏差となっていた（第４図）。

黒潮は東海沖で離岸し、32.5°N 付近まで南下していた。その後上旬は八丈島付近を北上、中・下旬は八丈島の南を流れた後、向きを変えて八丈島の東を北上し、房総半島に沿って北東に流れていた（第９図）。

太平洋の海況

太平洋赤道域の海面水温は、135°Eから145°Eにかけてと155°Eから165°Wにかけて＋0.5℃を超える正偏差であった。一方、130°Wから120°Wにかけてと105°W付近では平年より１℃以上低かった。また、エクアドル、ペルー沖でも平年より1℃以上低かった。

北太平洋の海面水温は、30°N から 45°N の 165°E から 160°W にかけて平年より 1℃以上高かった。一方、日本の南東及びアラスカ湾の南 50°N・140°W 付近には－1℃を超える負偏差が見られた（第１７図）。

Highlights September 2001

Seas adjacent to Japan

SSTs were generally below normal and negative SST anomalies exceeding －1℃ were found south of Hokkaido and in the seas between 20°N and 35°N, from 140°E to 160°E (Fig. 4).

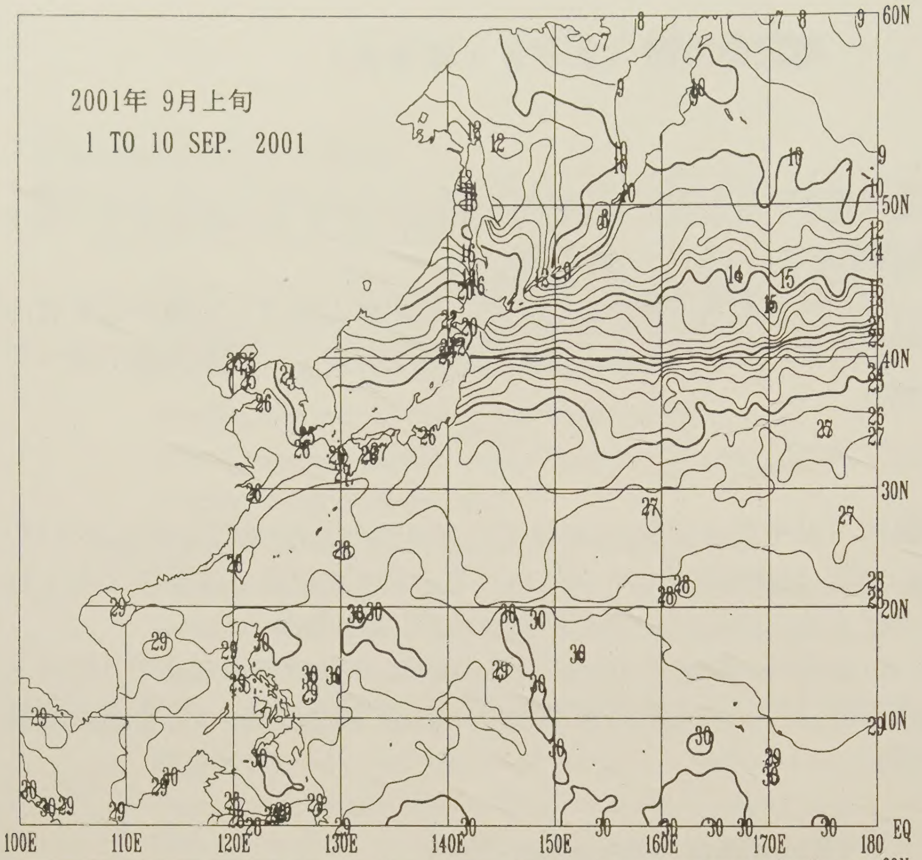
The Kuroshio flowed SE-ward to about 32.5°N off Tokai through the month. It flowed northward near Hachijo Island in the first 10 days of the month. In the rest of the month, it passed south of Hachijo Island and flowed northward east of Hachijo Island. After that, it flowed NE-ward along the Boso Peninsula through the month (Fig. 9).

Pacific Ocean

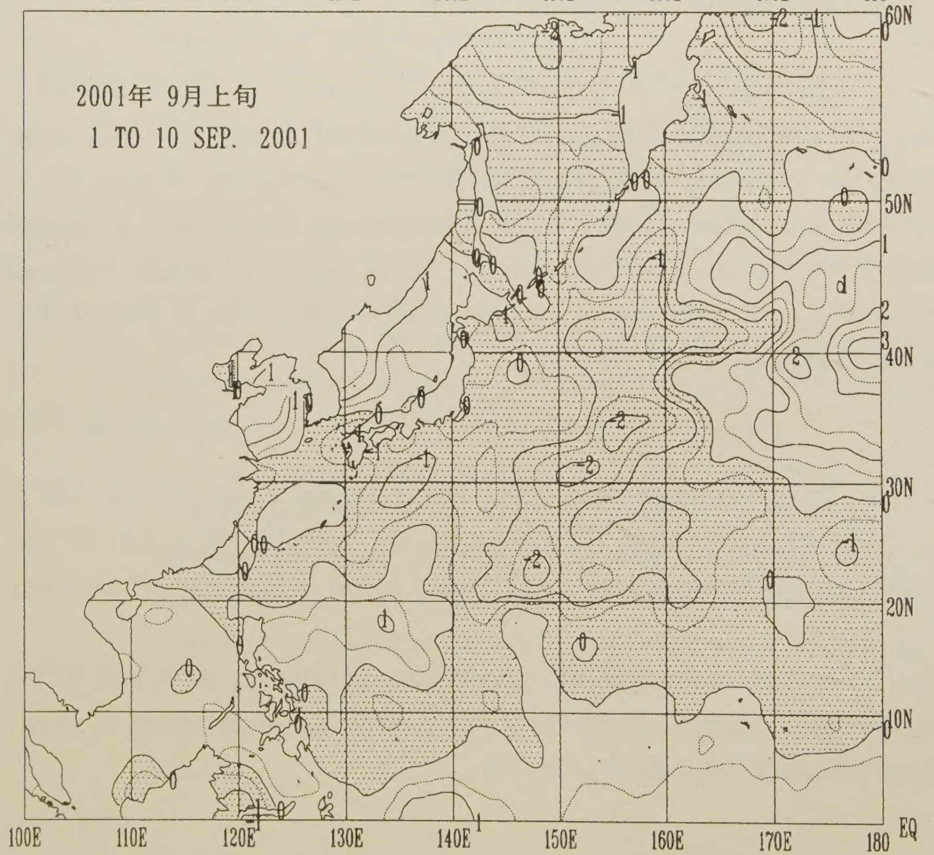
In the equatorial Pacific, SSTs were more than 0.5℃ above normal from 135°E to 145°E and from 155°E to 165°W. SSTs were more than 1℃ below normal from 130°W to 120°W and around 105°W. Negative SST anomalies exceeding －1℃ were found in the seas off Ecuador and Peru.

In the North Pacific, SSTs were more than 1℃ above normal between 30°N and 45°N, from 165°E to 160°W. Negative SST anomalies exceeding －1℃ were found southeast of Japan and south of the Gulf of Alaska around 50°N, 140°W (Fig. 17).

Ten-day mean SST & Anomalies

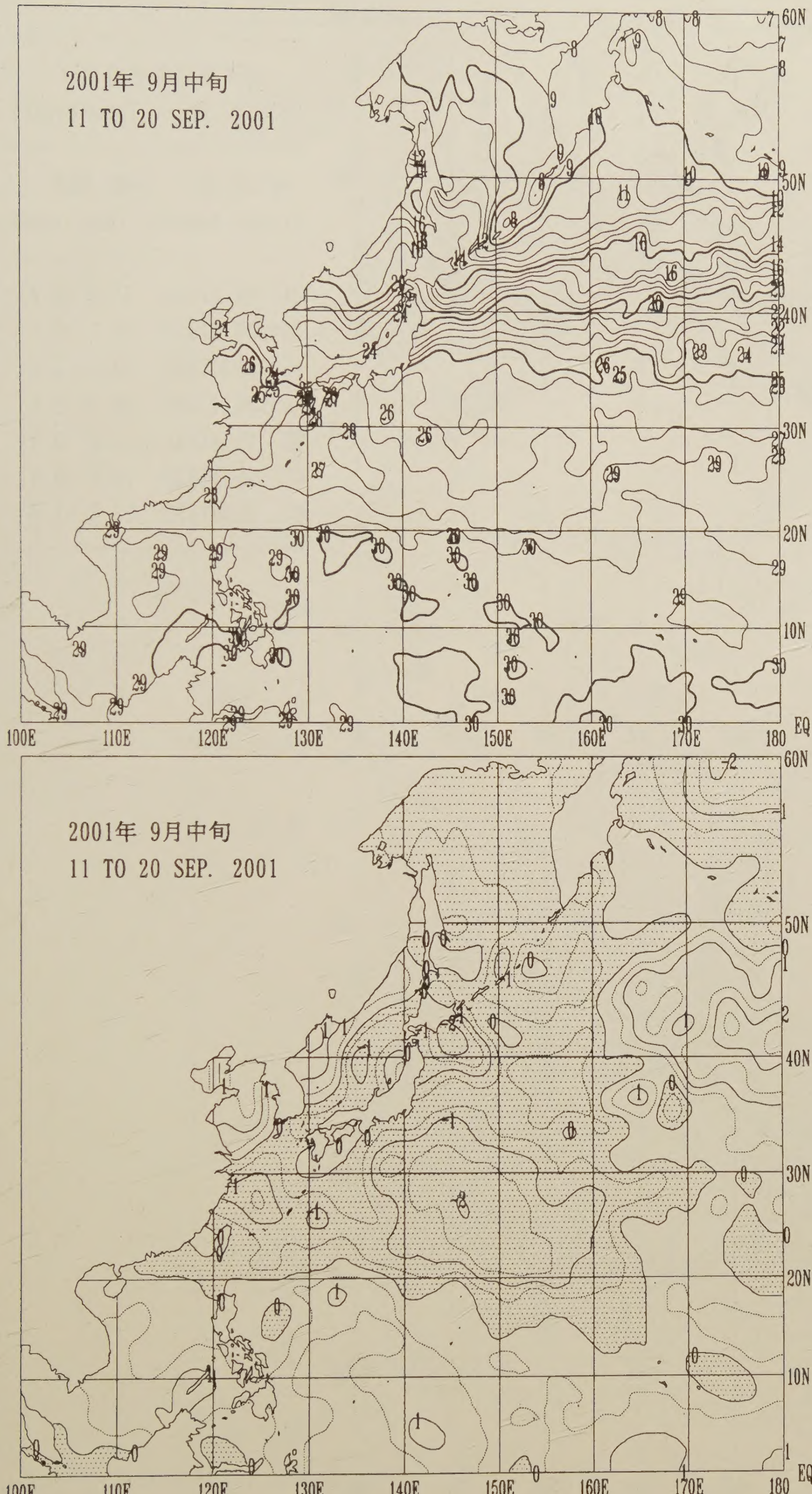


旬平均沿岸水温(℃) Coastal Water Temperature		
地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	29.3	0.5
御前崎(47655)	25.7	0.1
八丈島(47678)	25.9	-1.2
小名浜(47598)	22.3	0.1
宮　古(47585)	19.6	-0.7
江　差(47428)	23.7	0.4
浜　田(47755)	24.2	-2.4



第1図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(2001年 9月上旬)

Fig. 1 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 1st ten-day period in SEP 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.



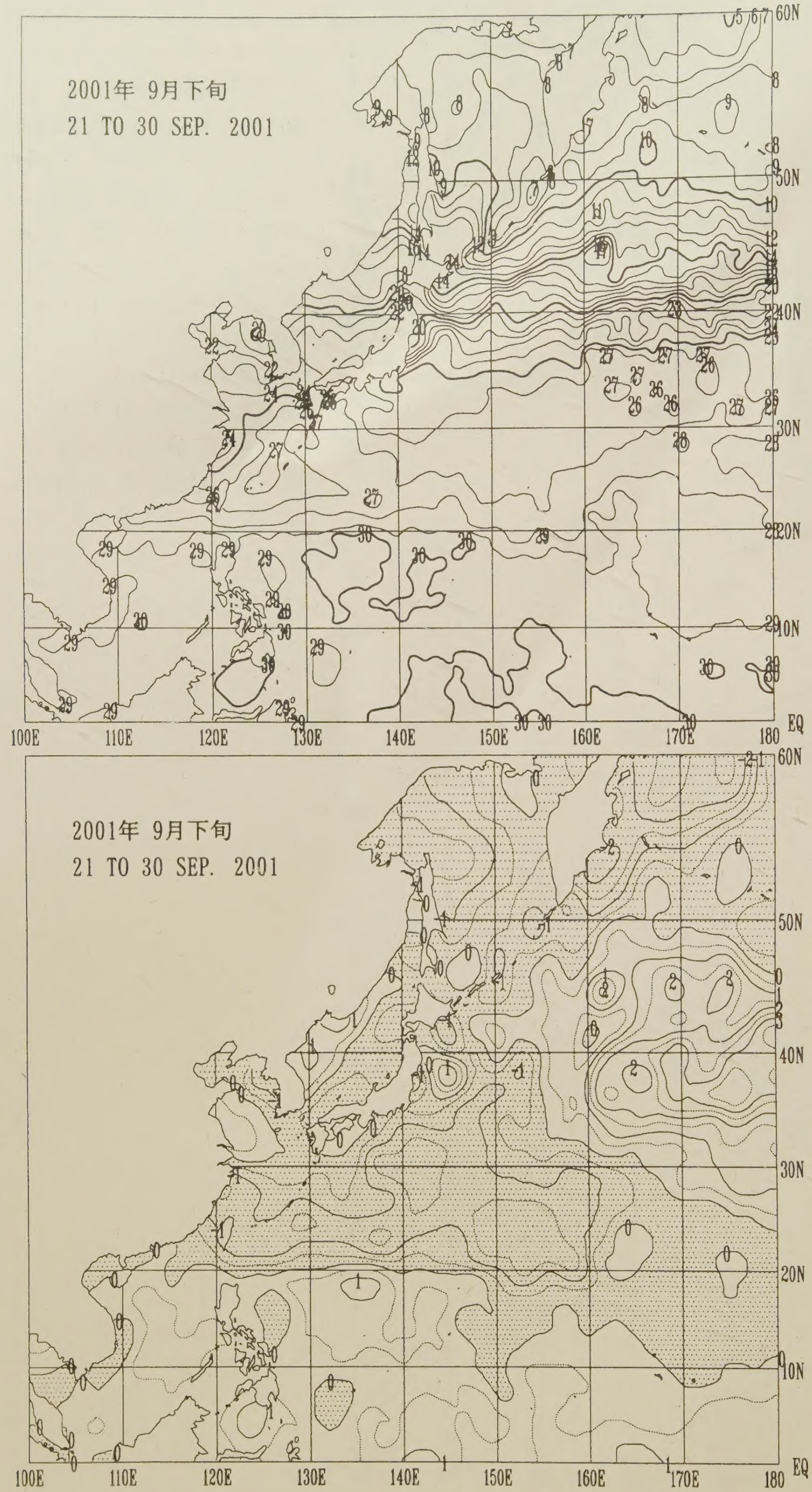
旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	27.7	-0.8
御前崎(47655)	25.7	1.0
八丈島(47678)	24.1	-2.6
小名浜(47598)	21.8	-0.2
宮　古(47585)	19.2	-1.0
江　差(47428)	22.1	-0.3
浜　田(47755)	23.4	-1.9

第2図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(2001年 9月中旬)

Fig. 2 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 2nd ten-day period in SEP 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Ten-day mean SST & Anomalies



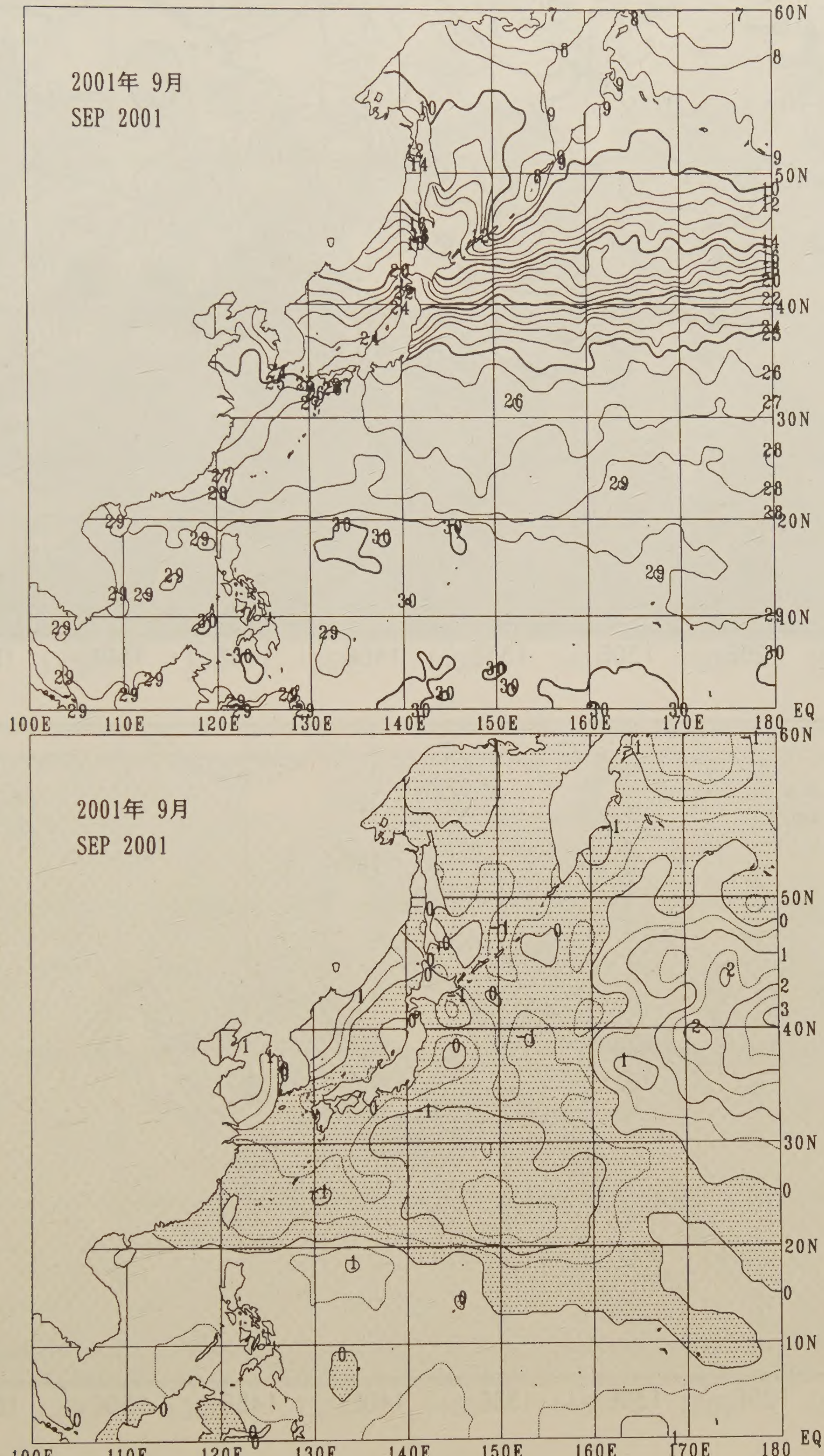
旬平均沿岸水温 (℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣 (47918)	27.6	-0.2
御前崎 (47655)	24.3	0.7
八丈島 (47678)	23.1	-2.8
小名浜 (47598)	20.1	-1.3
宮　古 (47585)	18.9	-0.8
江　差 (47428)	19.9	-0.9
浜　田 (47755)	23.0	-1.0

第3図 北西太平洋旬平均海面水温図(上)及び偏差図(下) (2001年 9月下旬)

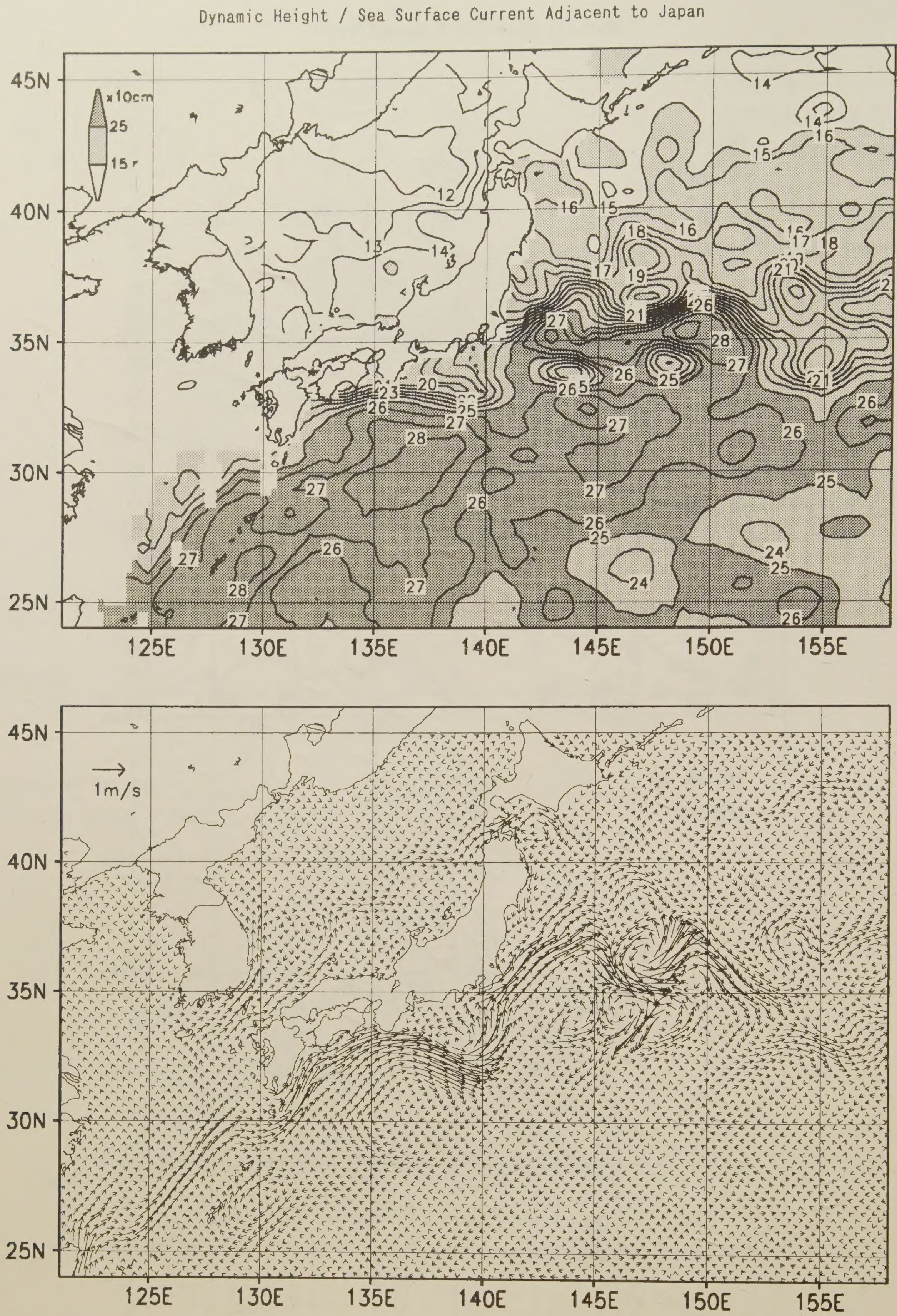
Fig. 3 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 3rd ten-day period in SEP 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Monthly Mean SST & Anomalies



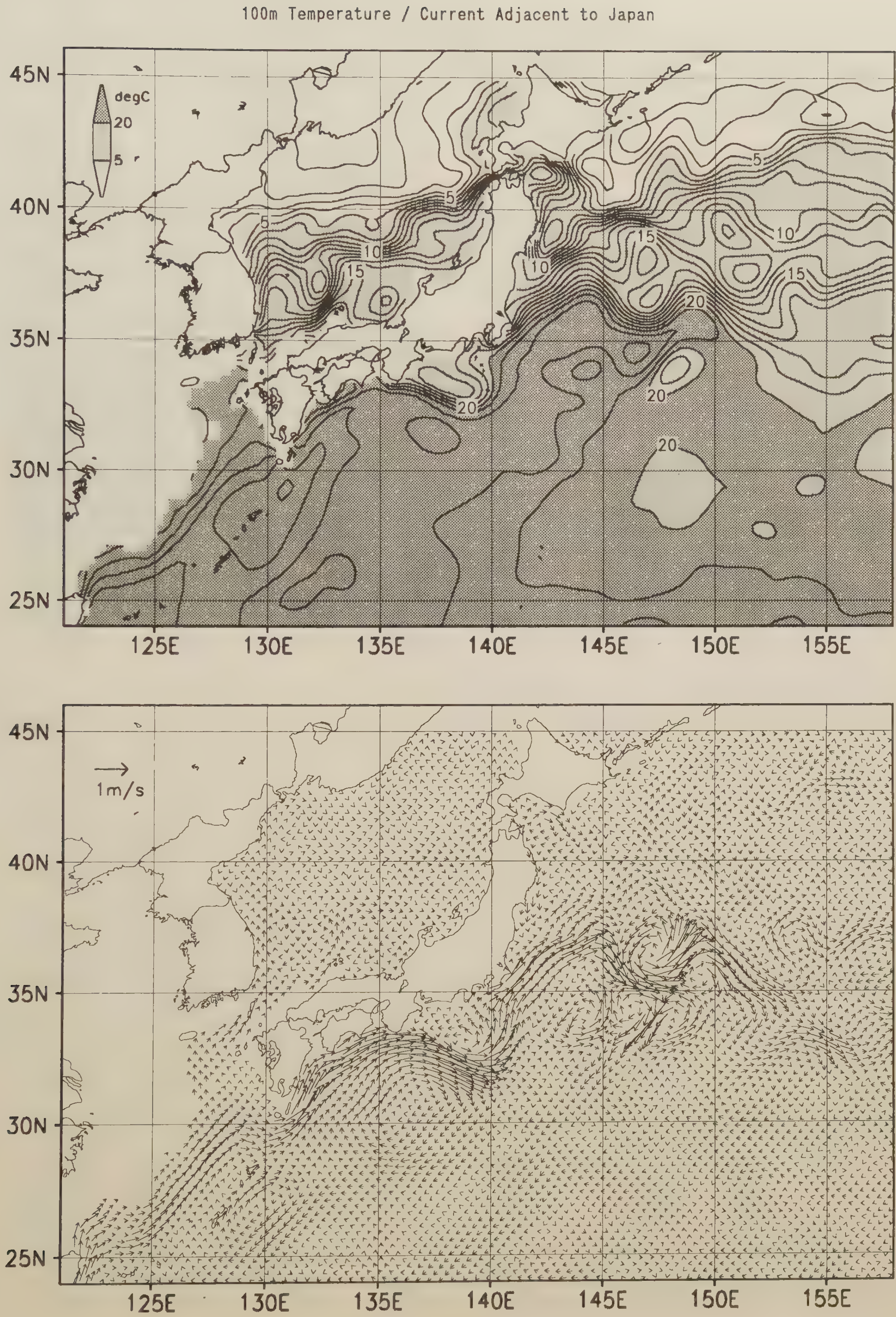
第4図 北西太平洋月平均海面水温図(上)及び偏差図(下)(2001年 9月)

Fig. 4 Monthly mean SST (top) and anomalies (bottom) in the western North Pacific for SEP 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.



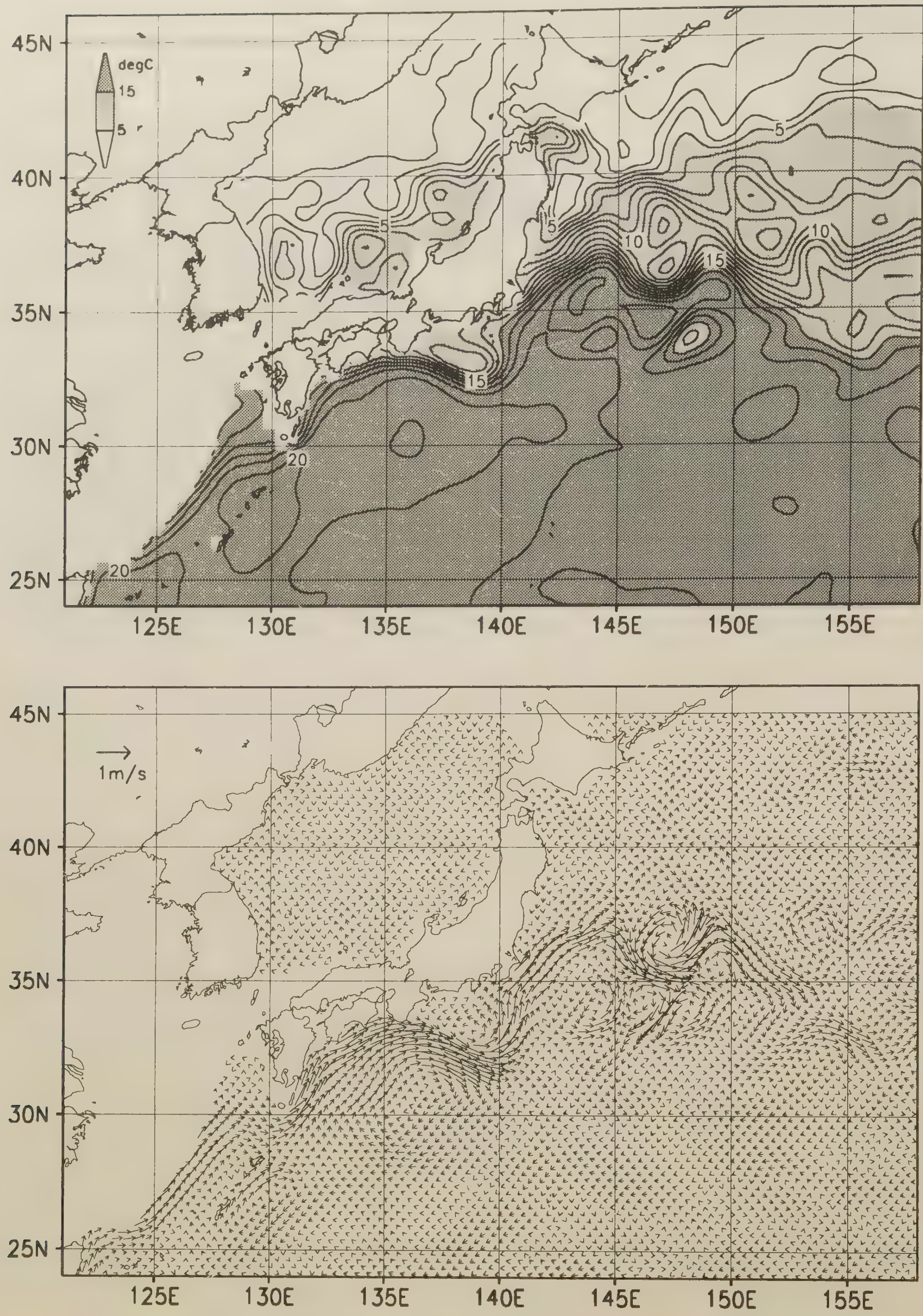
第５図　日本近海月平均海面高度分布図(上)と海面海流図(下)（2001年９月）
（海洋総合解析システムによる）

Fig. 5　Monthly mean sea surface height (top) and current (bottom) in seas adjacent to Japan for September 2001. Contour interval is 10cm (top). (calculated by the Ocean Comprehensive Analysis System)



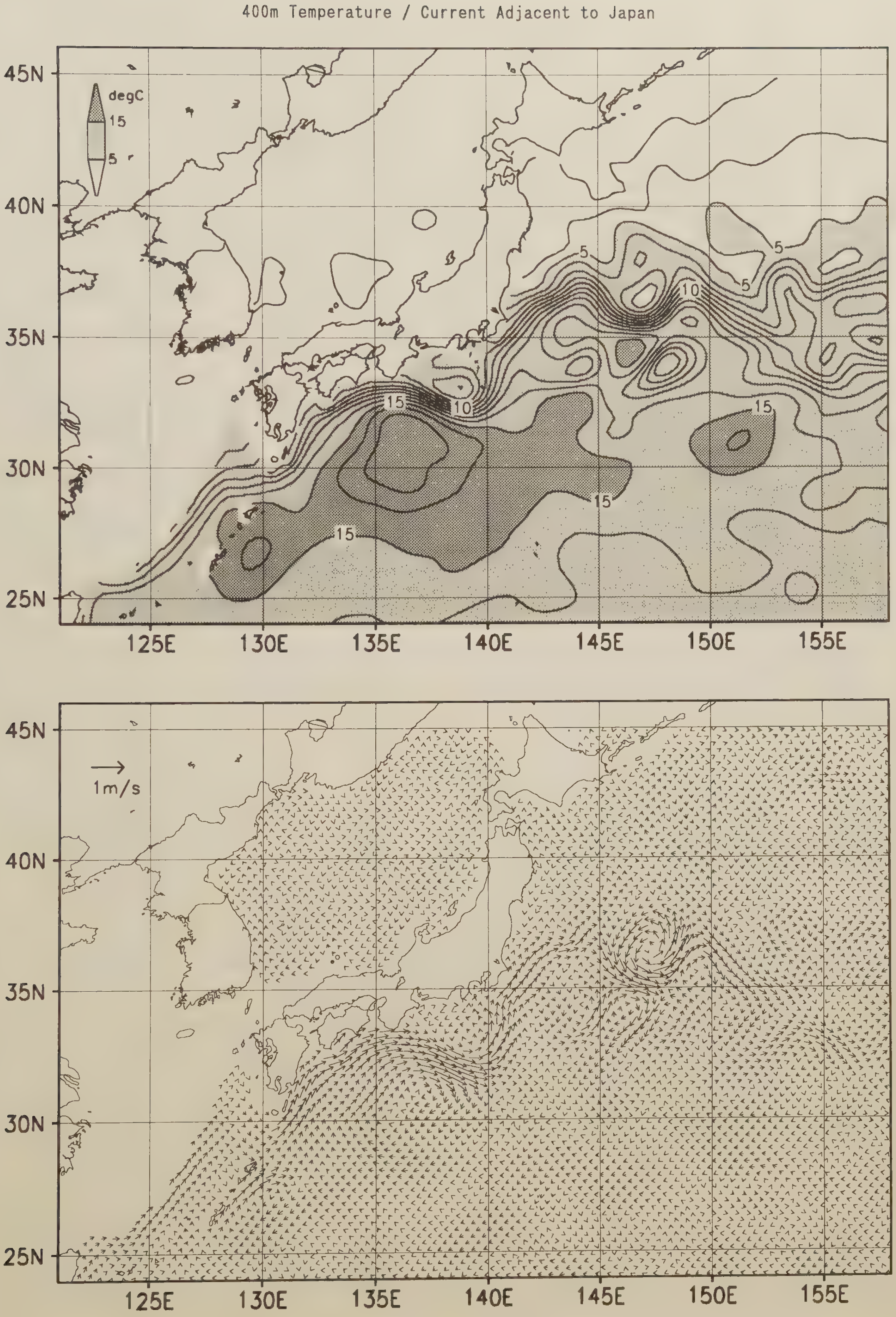
第6図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 100 m）（2001 年 9 月）
（海洋総合解析システムによる）

Fig. 6　Monthly mean subsurface (100 m) temperature (top) and current (bottom) in seas adjacent to Japan for September 2001. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)



第7図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 200 m）(2001 年 9 月)
（海洋総合解析システムによる）

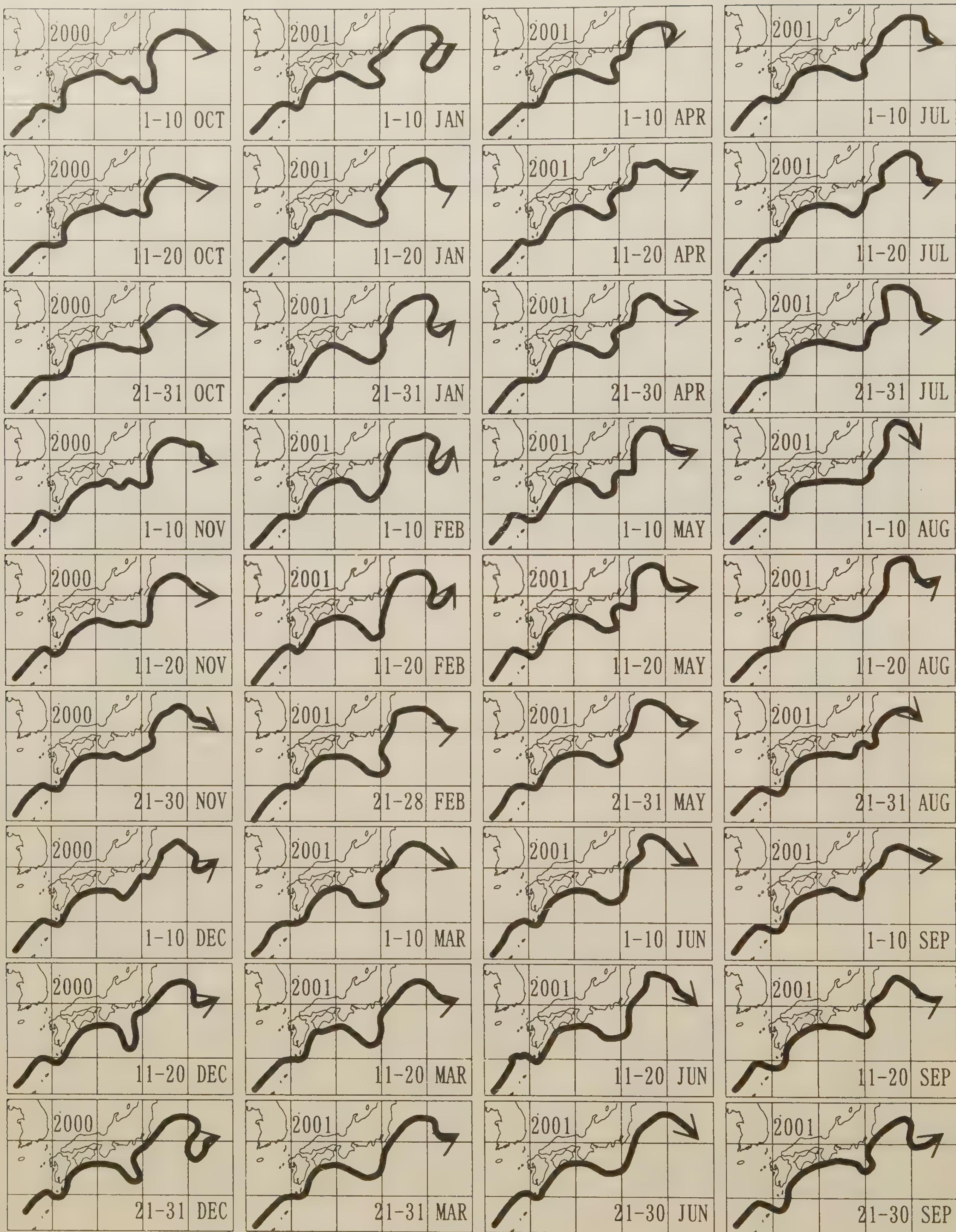
Fig. 7　Monthly mean subsurface (200 m) temperature (top) and current (bottom) in seas adjacent to Japan for September 2001. Contour interval is 1 ˚C (top). (calculated by the Ocean Comprehensive Analysis System)



第 8 図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 400 m）（2001 年 9 月）
（海洋総合解析システムによる）

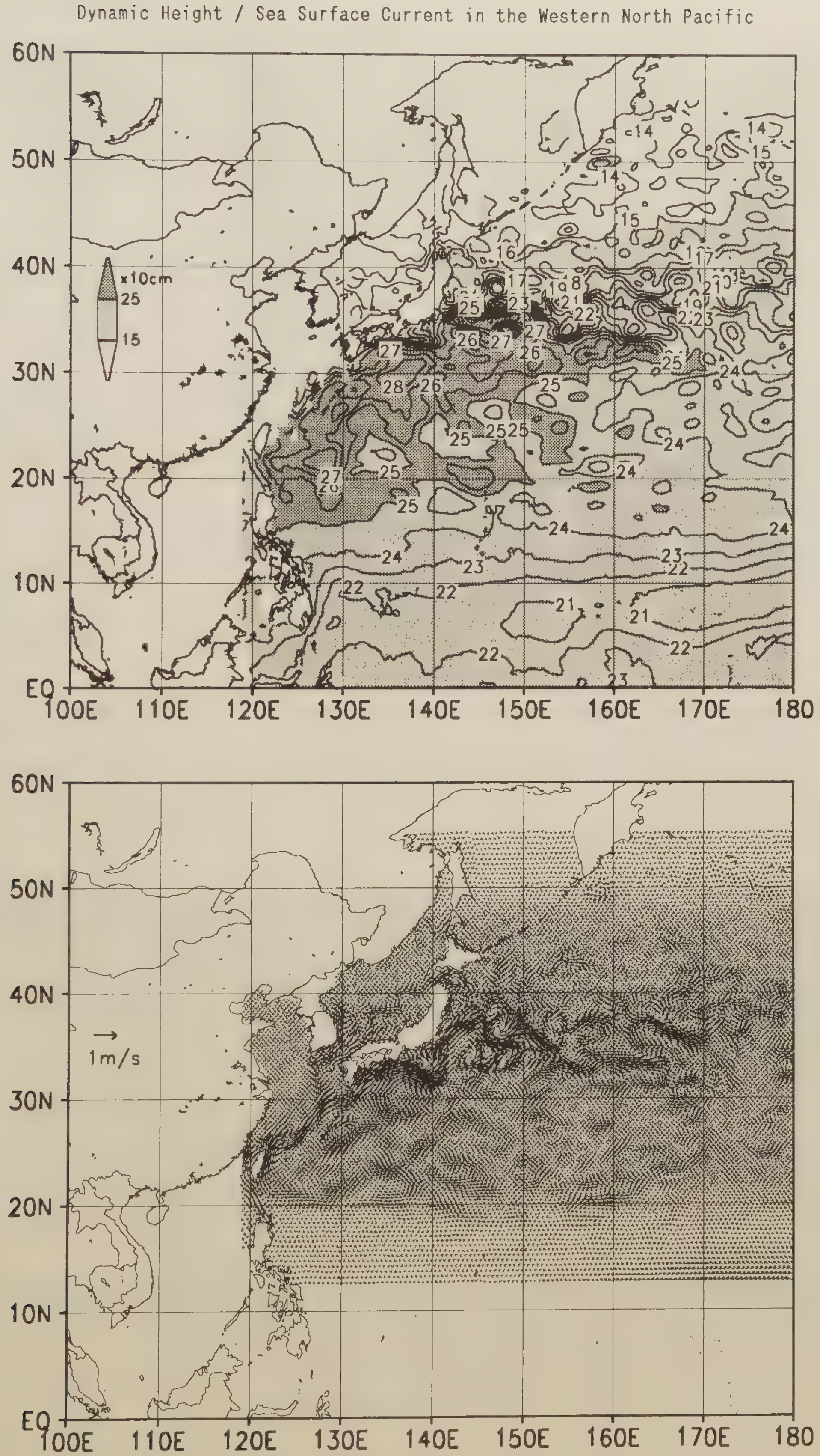
Fig. 8　Monthly mean subsurface (400 m) temperature (top) and current (bottom) in seas adjacent to Japan for September 2001. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)

Location of the Kuroshio axis



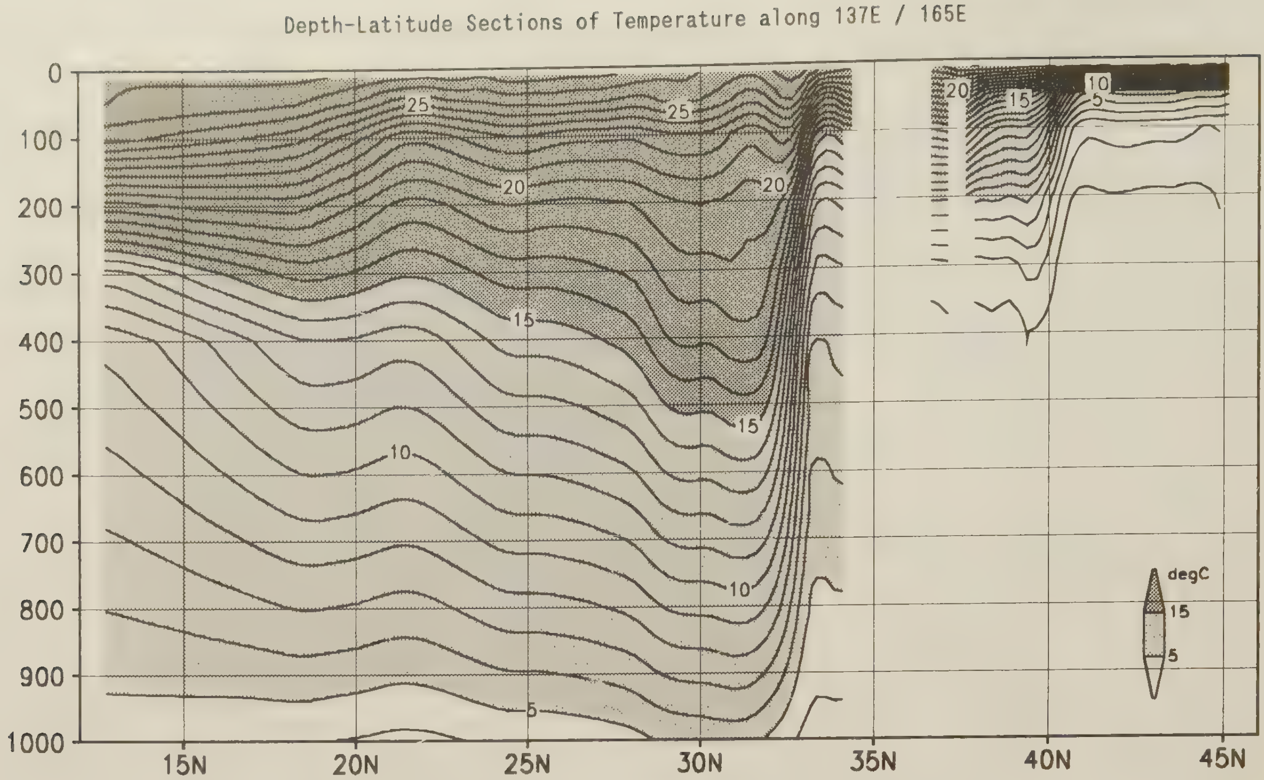
第9図 旬別黒潮流軸図

Fig. 9 Location of the Kuroshio axis



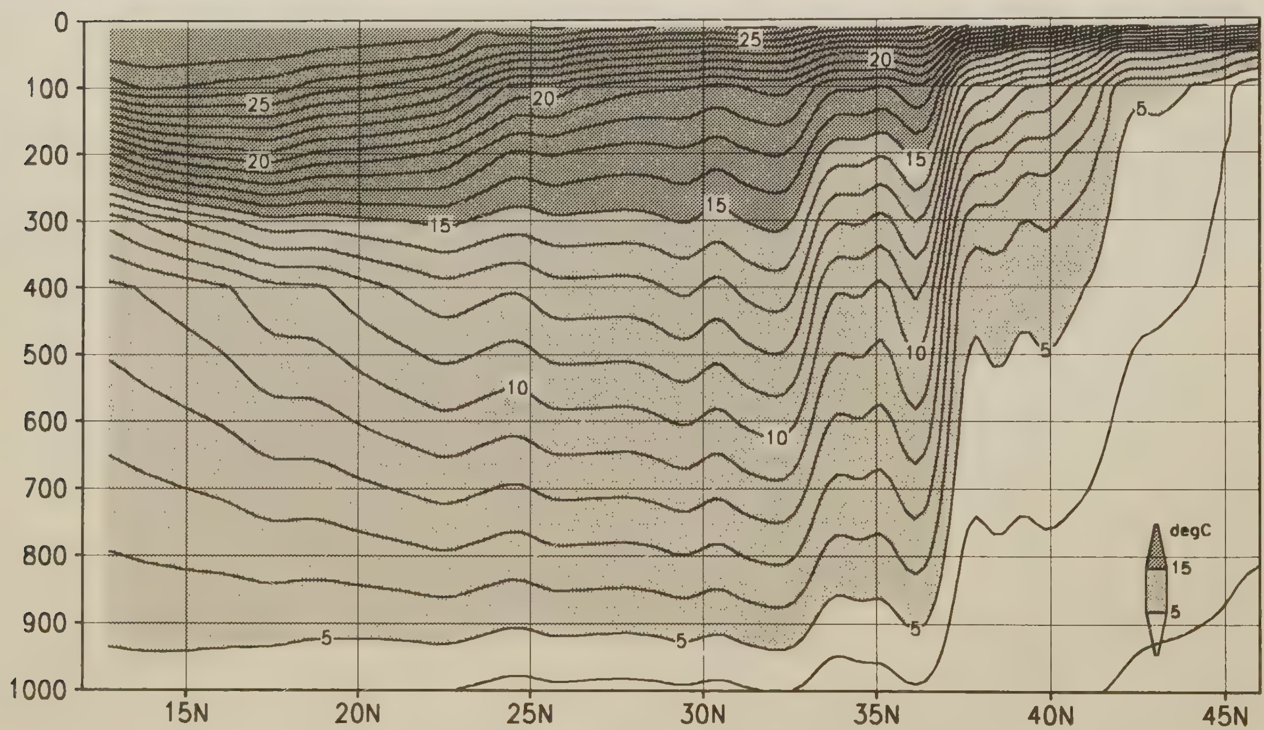
第 10 図　北西太平洋月平均海面高度分布図 (上) と海面海流図 (下) (2001 年 9 月)
(海洋総合解析システムによる)

Fig. 10　Monthly mean sea surface height (top) and current (bottom) in the western North Pacific for September 2001. Contour interval is 10cm (top). (calculated by the Ocean Comprehensive Analysis System)



第 11 図　東経 137°線に沿う月平均表層水温の鉛直断面図 (2001 年 9 月)
(海洋総合解析システムによる)

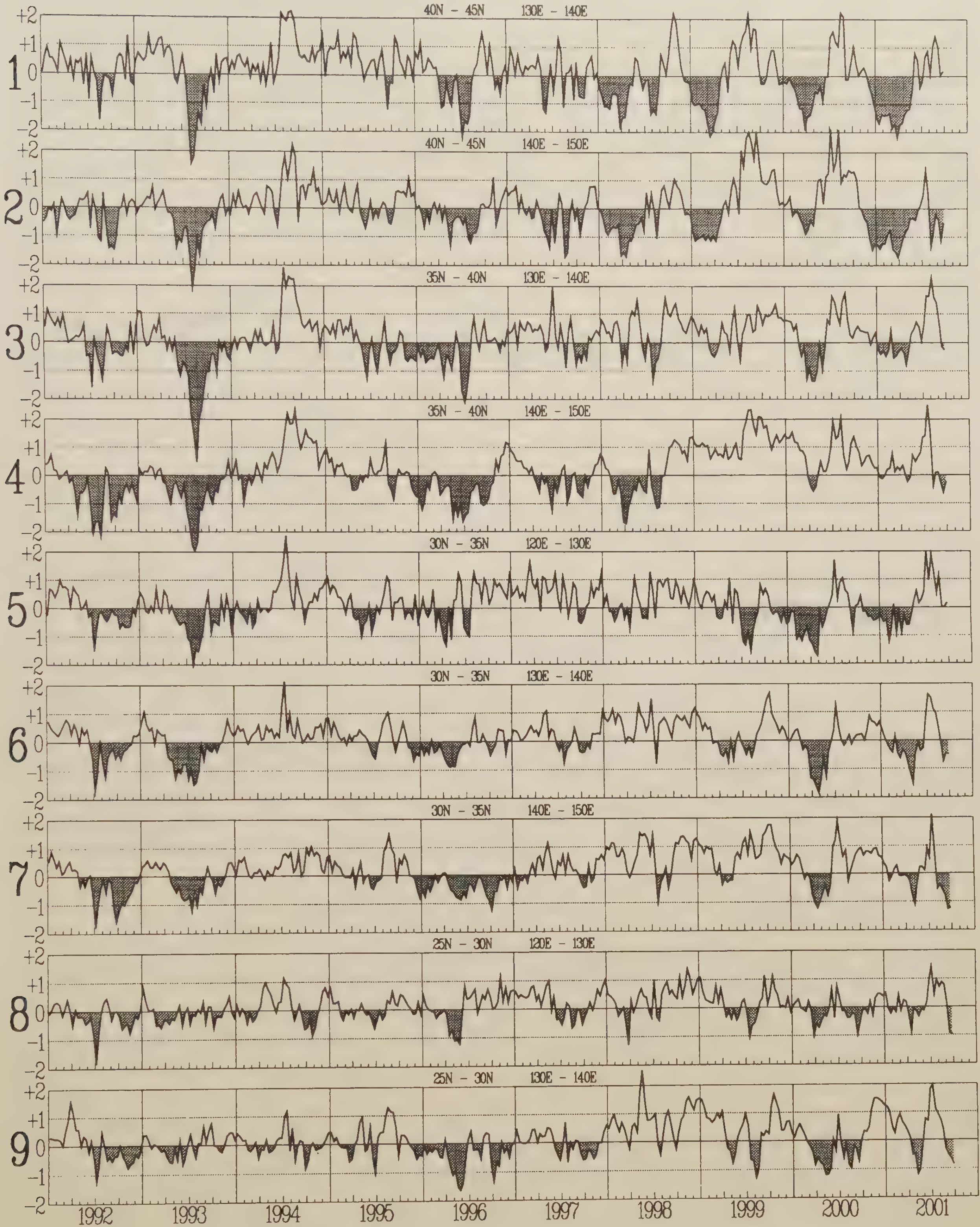
Fig. 11　Vertical cross section of monthly mean temperature along 137°E for September 2001. Contour interval is 1 °C. (calculated by the Ocean Comprehensive Analysis System)



第 12 図　東経 165°線に沿う月平均表層水温の鉛直断面図 (2001 年 9 月)
(海洋総合解析システムによる)

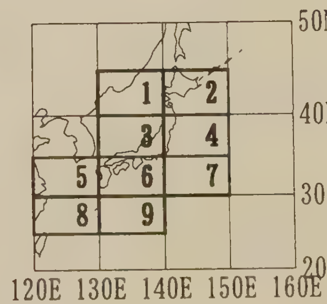
Fig. 12　Vertical cross section of monthly mean temperature along 165°E for September 2001. Contour interval is 1 °C. (calculated by the Ocean Comprehensive Analysis System)

Time Series of Area Mean SST in the Western North Pacific

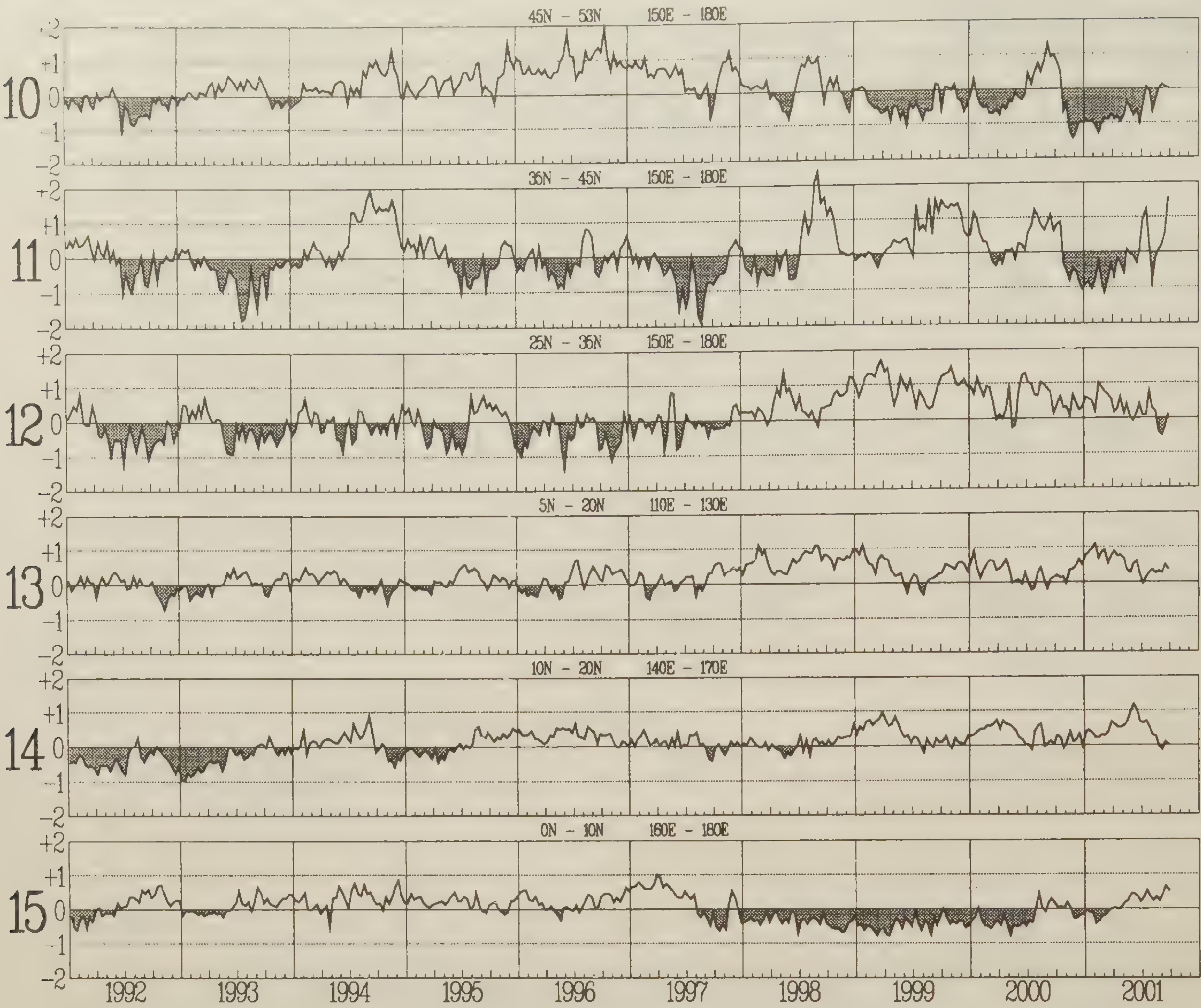


第13図　海域別旬平均海面水温平年偏差時系列図

Fig. 13 Time series of the ten-day mean SST anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).

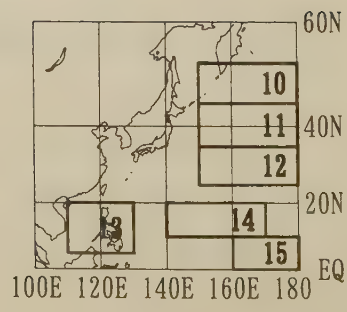


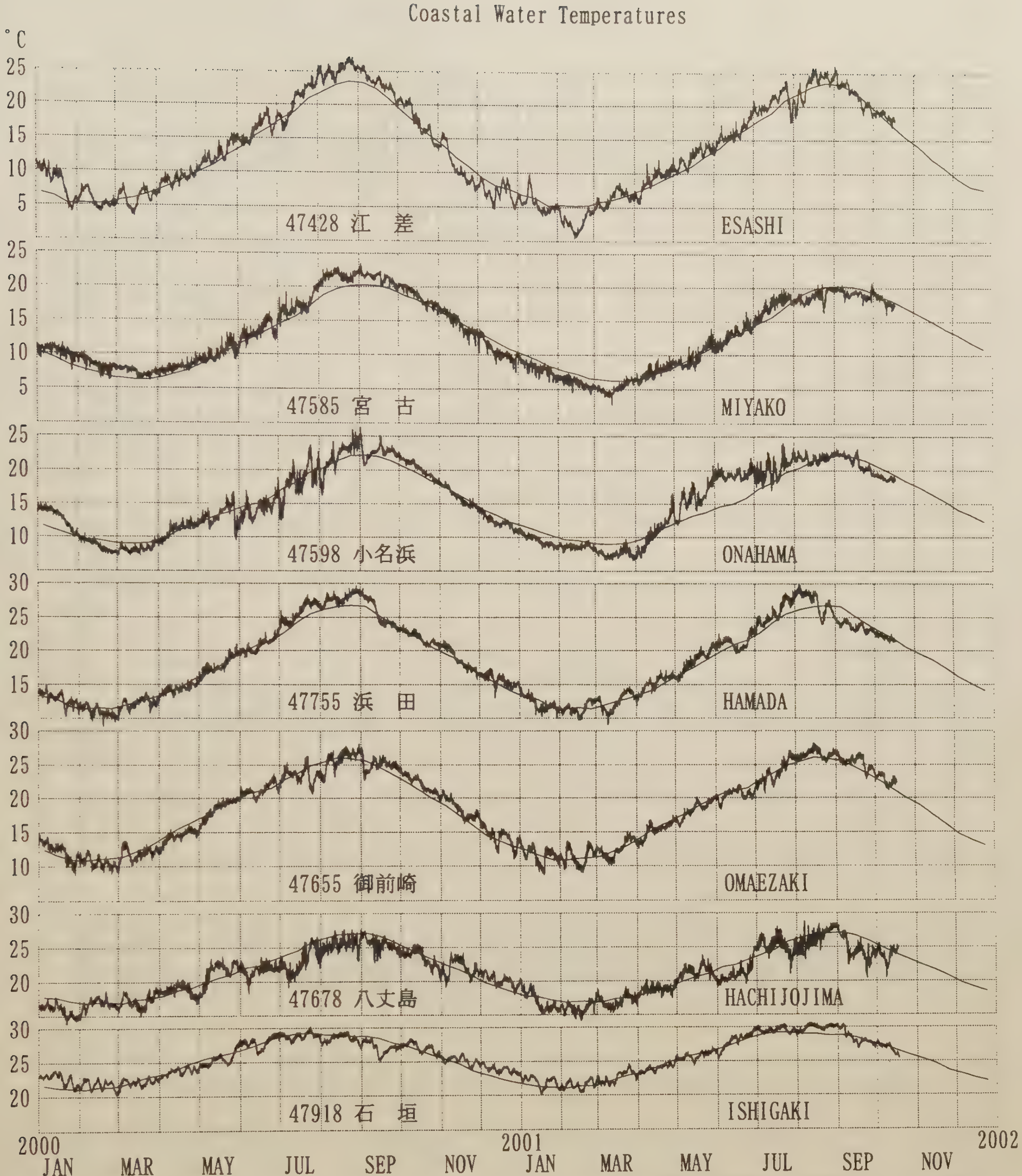
Time Series of Area Mean SST in the Western North Pacific



第13図　海域別旬平均海面水温平年偏差時系列図（つづき）

Fig. 13 (continue) Time series of the ten-day mean SST anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).

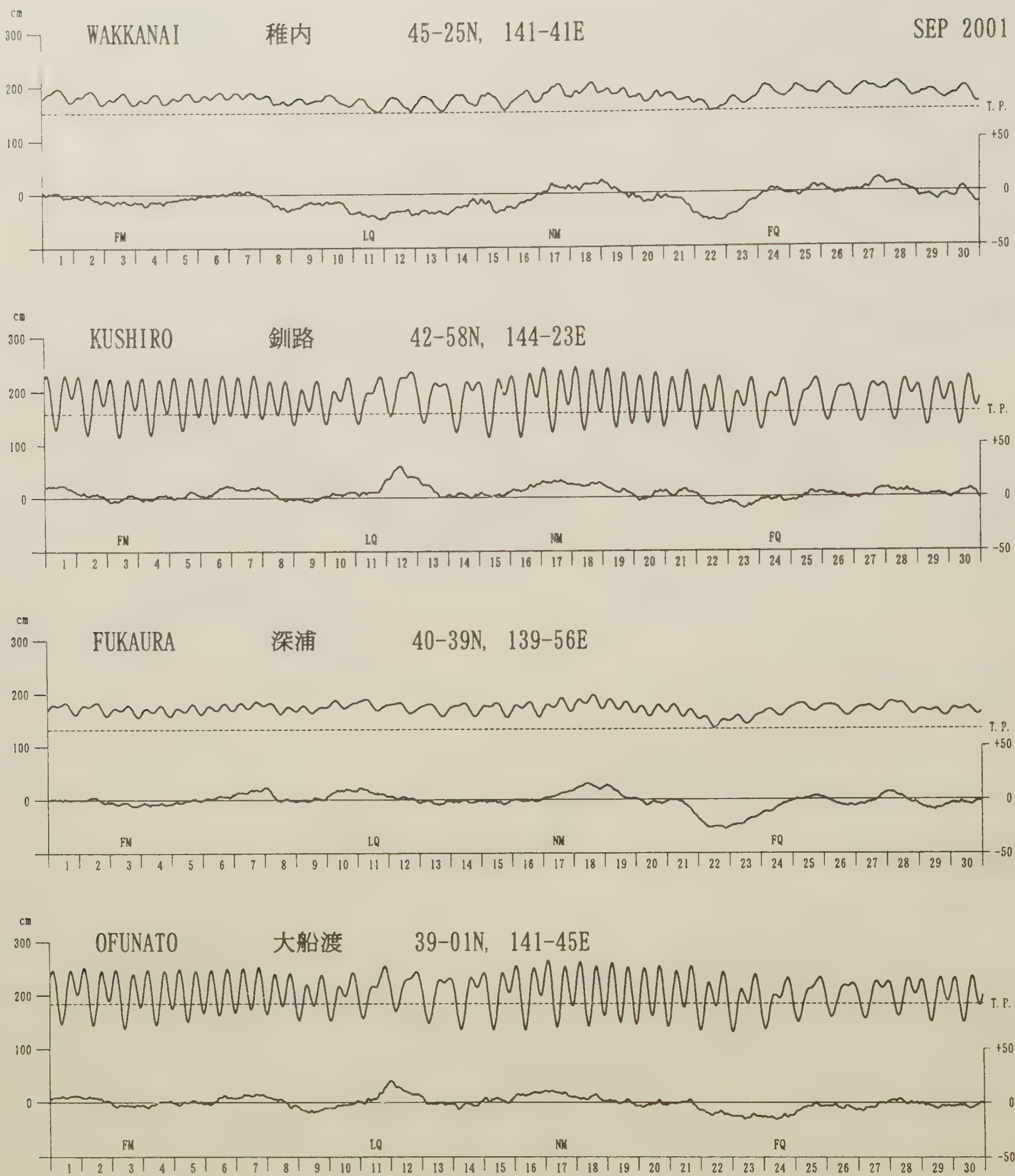




第14図 沿岸水温時系列図

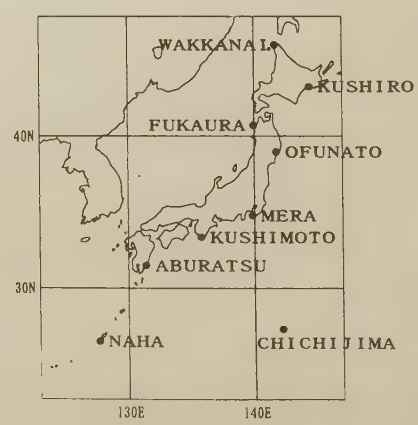
Fig. 14 Time series of hourly coastal water temperatures (°C) measured at 7 coastal stations of the JMA shown in the right panel.
Thin lines show ten-day mean climatology.





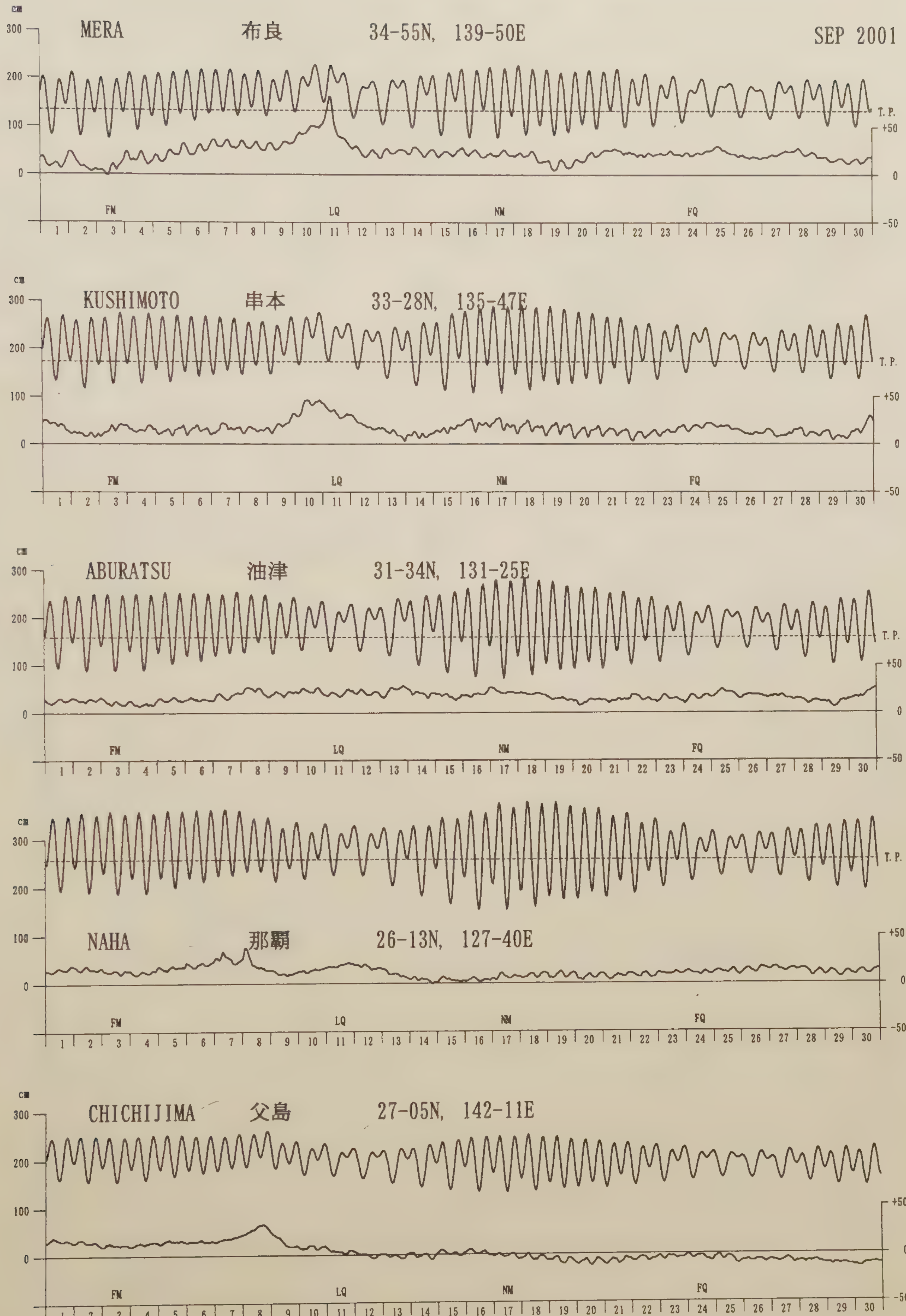
第15図 沿岸潮位時系列図（2001年 9月）

Fig. 15 Time series of hourly sea level observation (upper line) and its anomalies (lower line) at 9 stations of the JMA in the right panel.
Short term variations are removed from raw data.



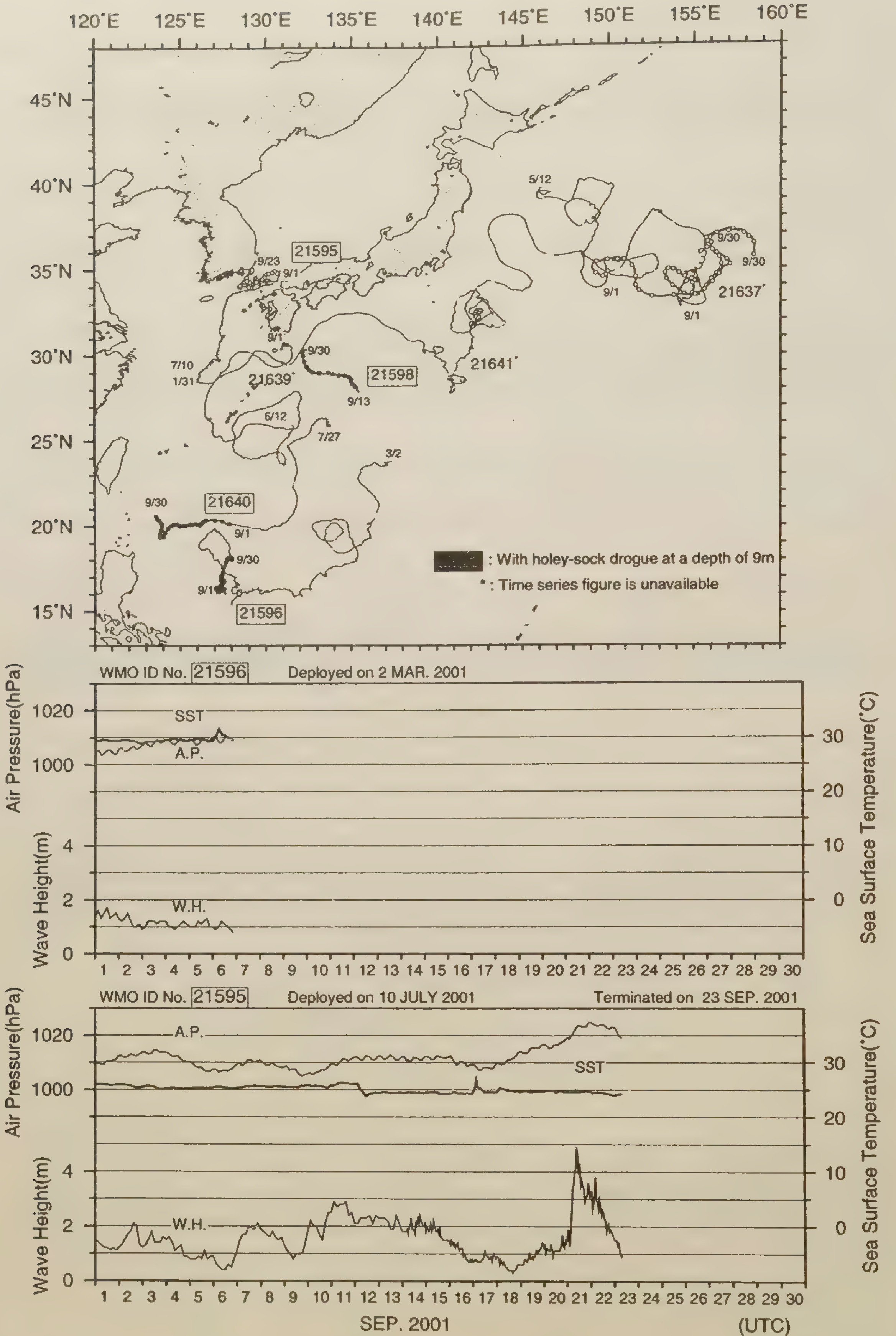
NM: new moon, FQ: first quarter
FM: full moon, LQ: last quarter
T. P. : Mean sea level of Tokyo Bay (Tokyo Peil)

Time series of Sea Level



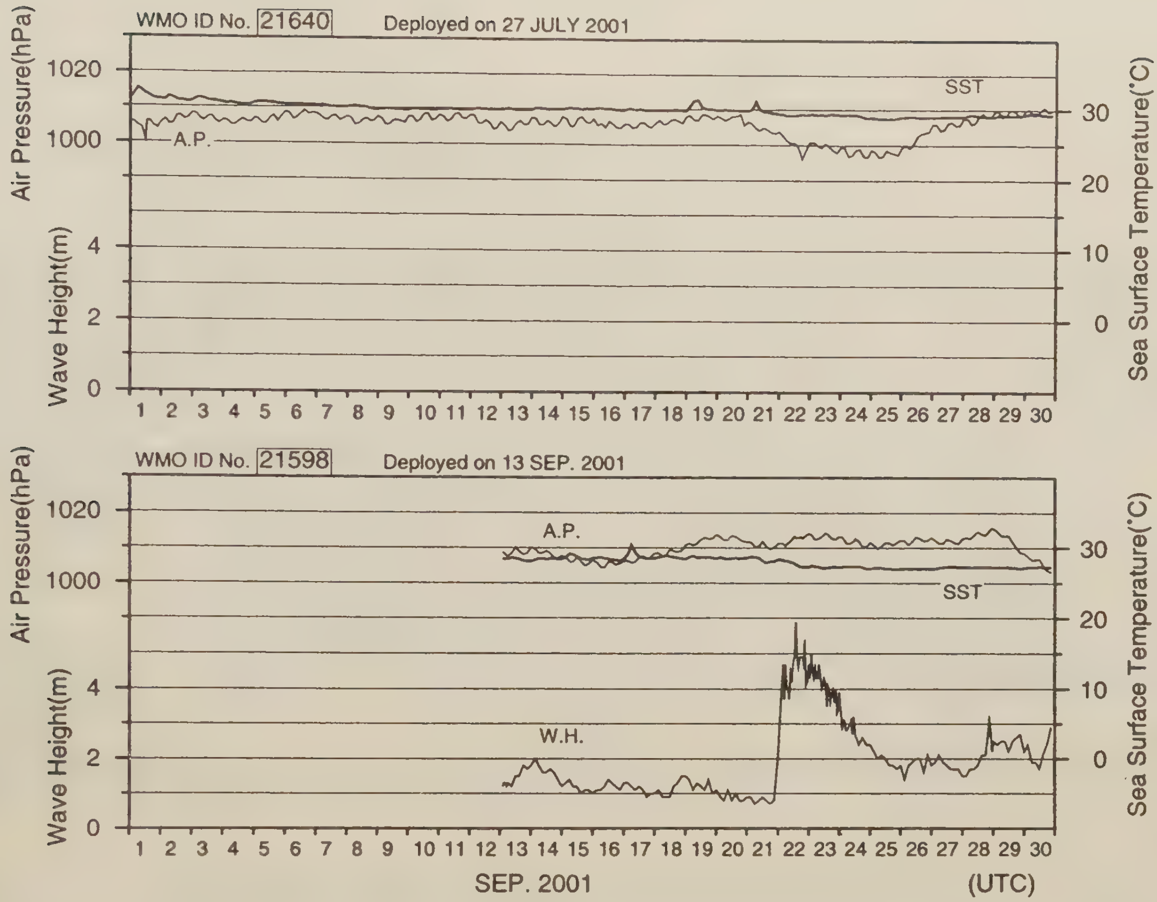
第15図 つづき

Fig. 15 continue

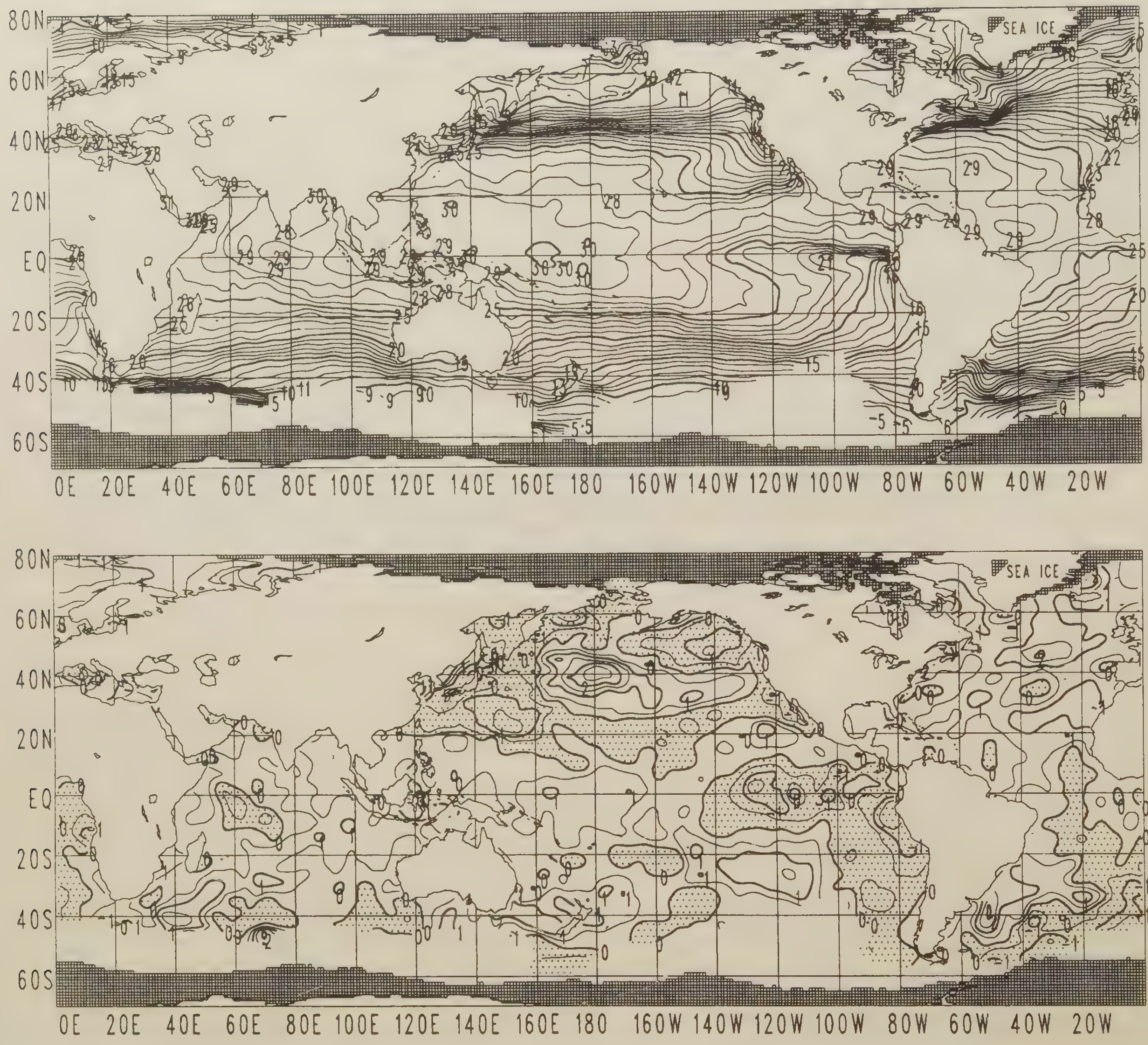


第16図　漂流型海洋気象ブイロボットの軌跡と観測要素の時系列図

Fig.16　Time series of JMA drifting buoy observation.
The upper panel shows paths of the buoys. Circles denote the position at 00h UTC everyday.
The lower panel shows time series of observation data.

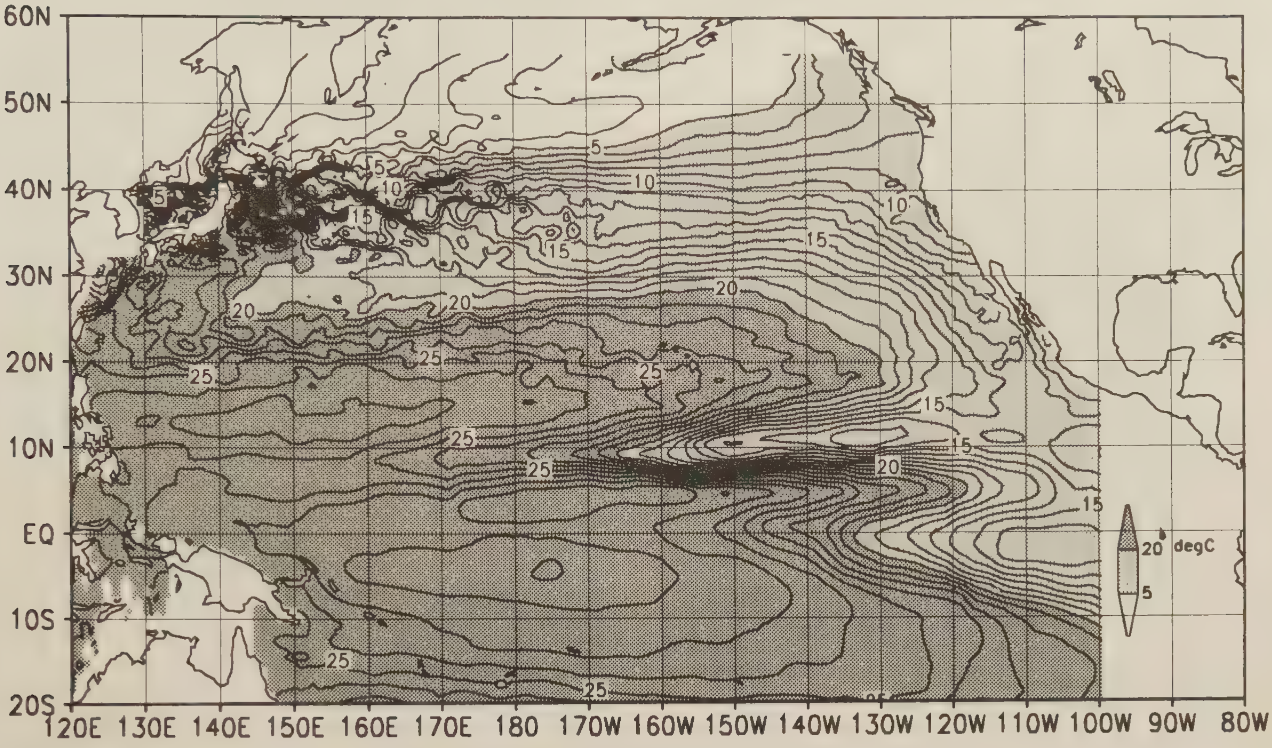


第16図 つづき
Fig.16 continue



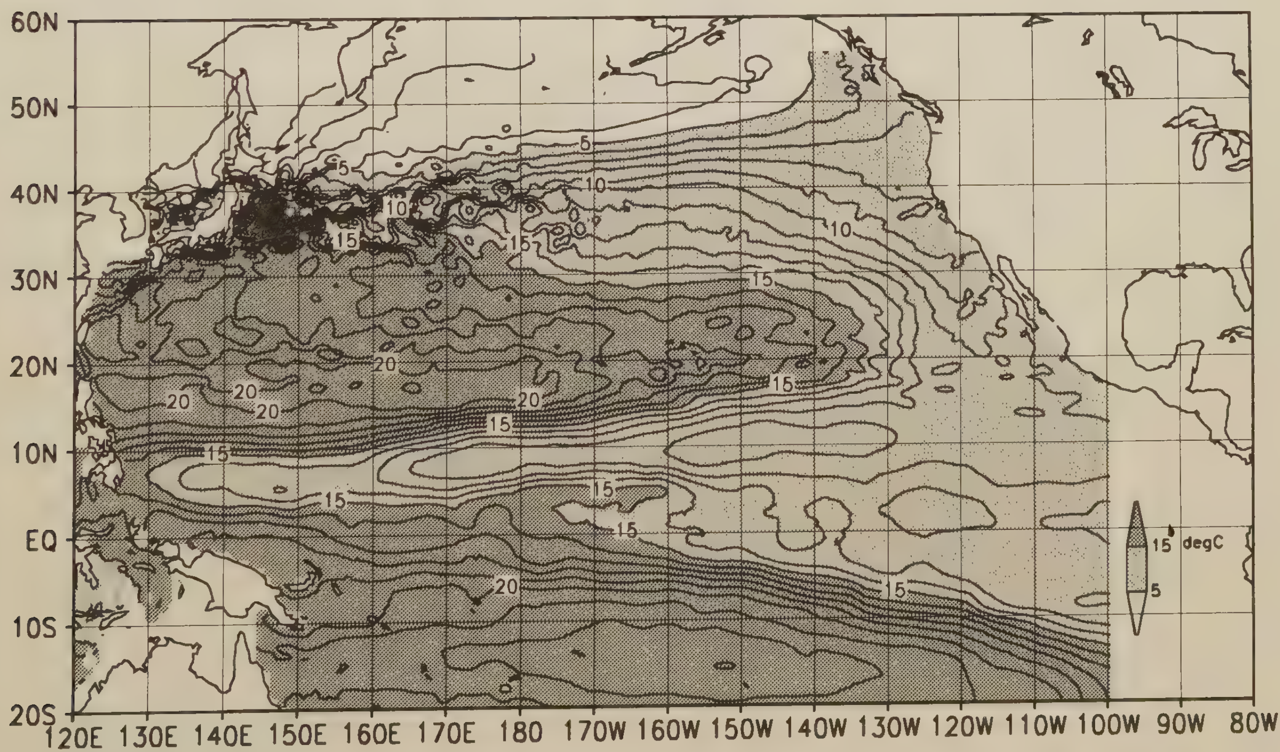
第17図　全球月平均海面水温図（上）及び偏差図（下）（2001年 9月）

Fig. 17 Monthly mean SST over the global ocean (top) and anomalies (bottom) for SEP 2001. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C (top) and additional anomaly contours of ±0.5°C are shown by thin lines. Negative anomalies are spotted. Maximum coverage of sea ice is shaded. Data sources for sea ice are U.S. National Ice Center (polar regions) and JMA (the Sea of Okhotsk).



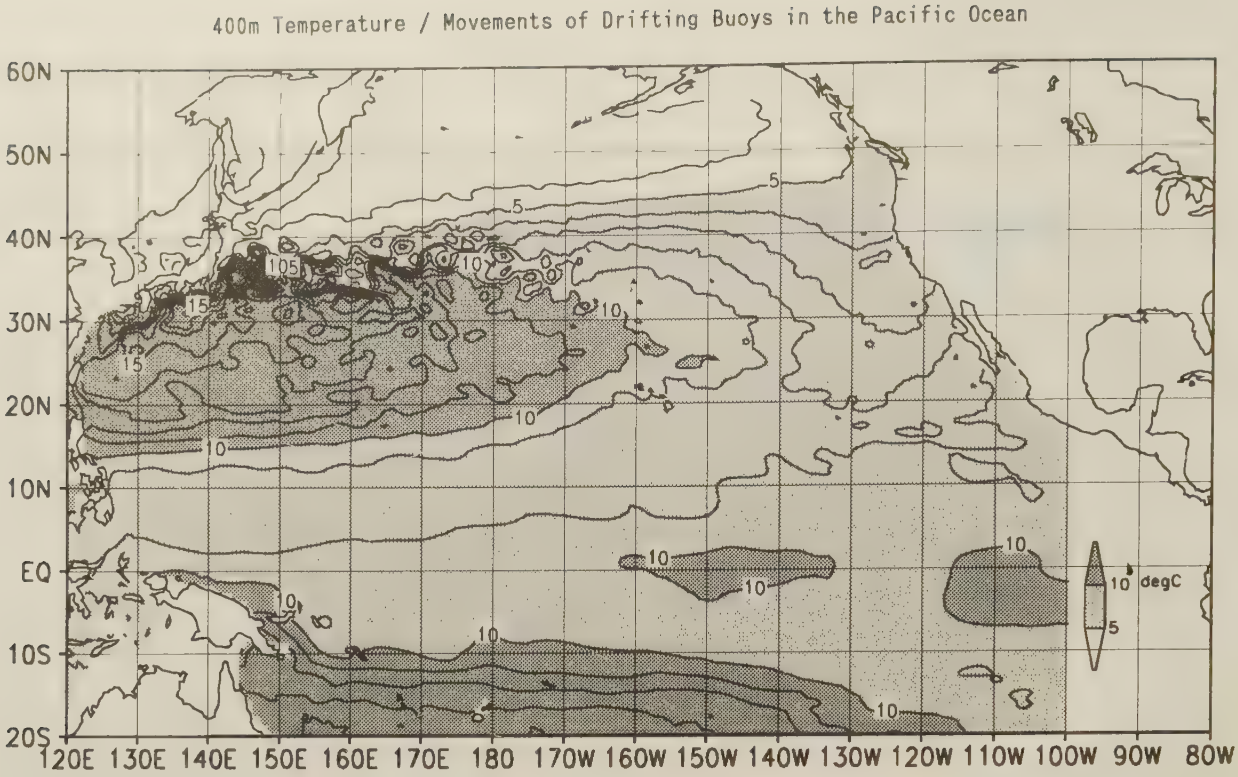
第18図　太平洋月平均表層水温図（深さ 100 m）　(2001 年 9 月)
（海洋総合解析システムによる）

Fig. 18　Monthly mean subsurface (100 m) temperature in the Pacific Ocean for September 2001. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



第19図　太平洋月平均表層水温図（深さ 200 m）　(2001 年 9 月)
（海洋総合解析システムによる）

Fig. 19　Monthly mean subsurface (200 m) temperature in the Pacific Ocean for September 2001. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



第 20 図　太平洋月平均表層水温図（深さ 400 m）（2001 年 9 月）
（海洋総合解析システムによる）

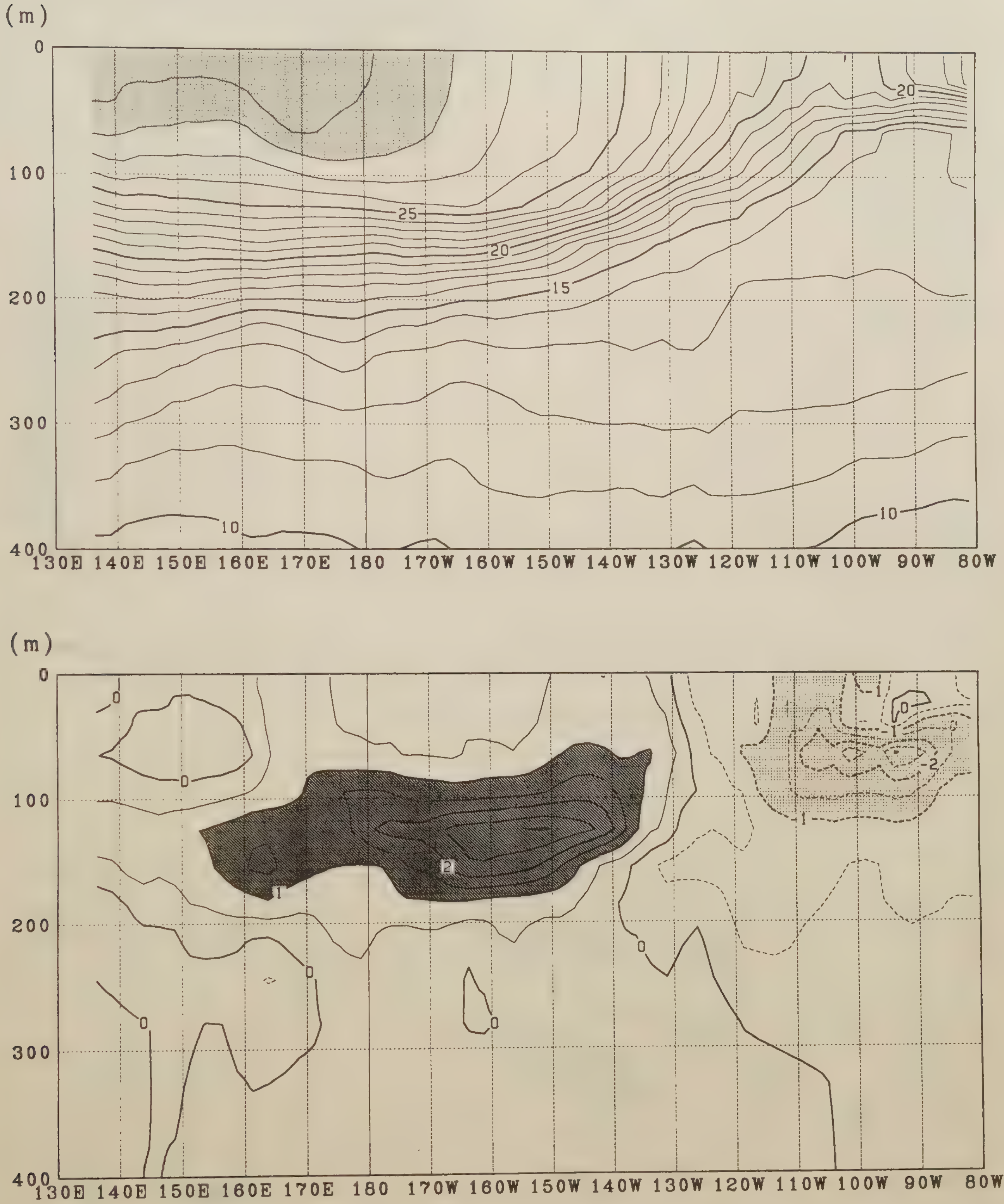
Fig. 20　Monthly mean subsurface (400 m) temperature in the Pacific Ocean for September 2001. Contour interval is 1 ˚C. (calculated by the Ocean Comprehensive Analysis System)



第 21 図　太平洋ブイ流跡図（2001 年 9 月）

Fig. 21　Trajectories of drifting buoys in the Pacific Ocean during September 2001. Each track is for one buoy. Small circles represent the last positions for the month.

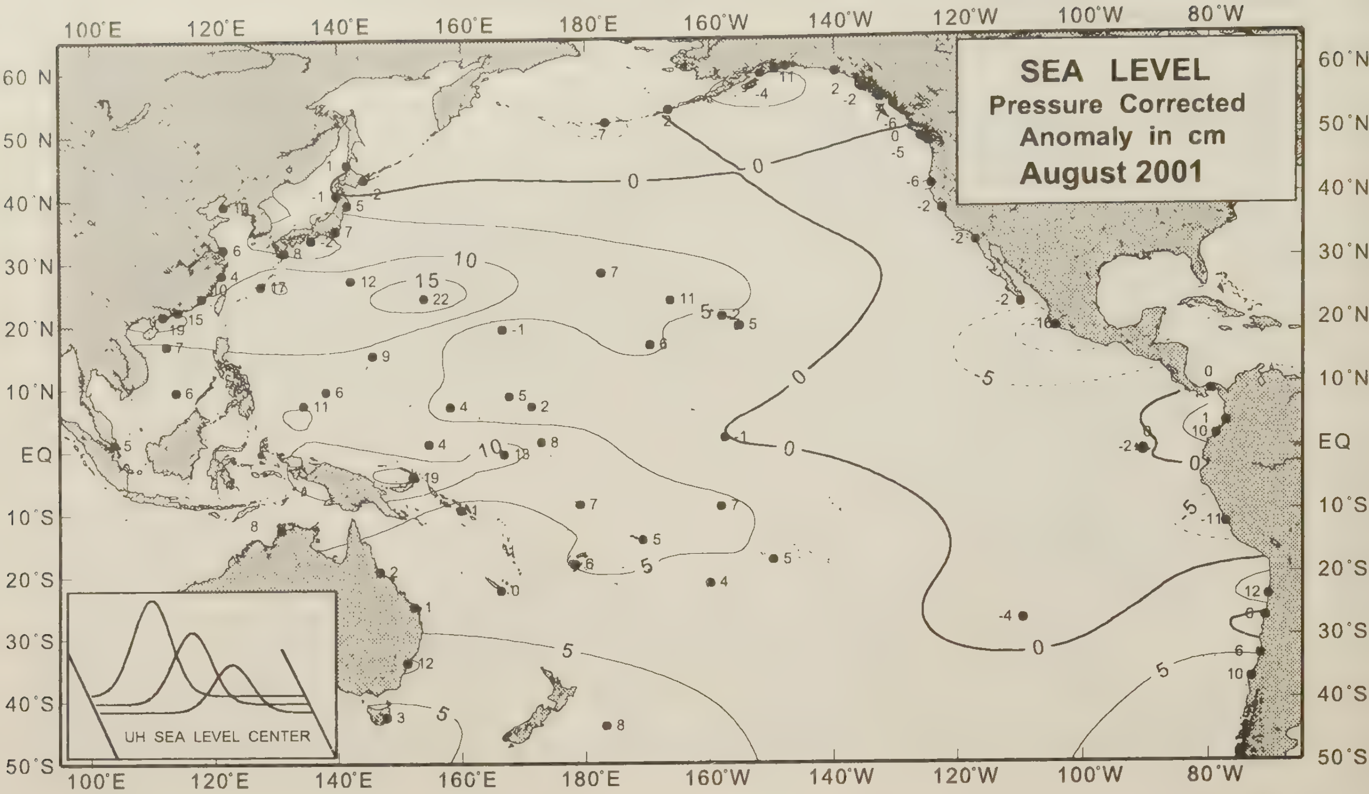
Depth-Longitude Sections of Equatorial Temperature & Anomalies



第22図　太平洋赤道に沿う表層水温（上）及び偏差（下）の深度－経度断面図（2001年 9月）

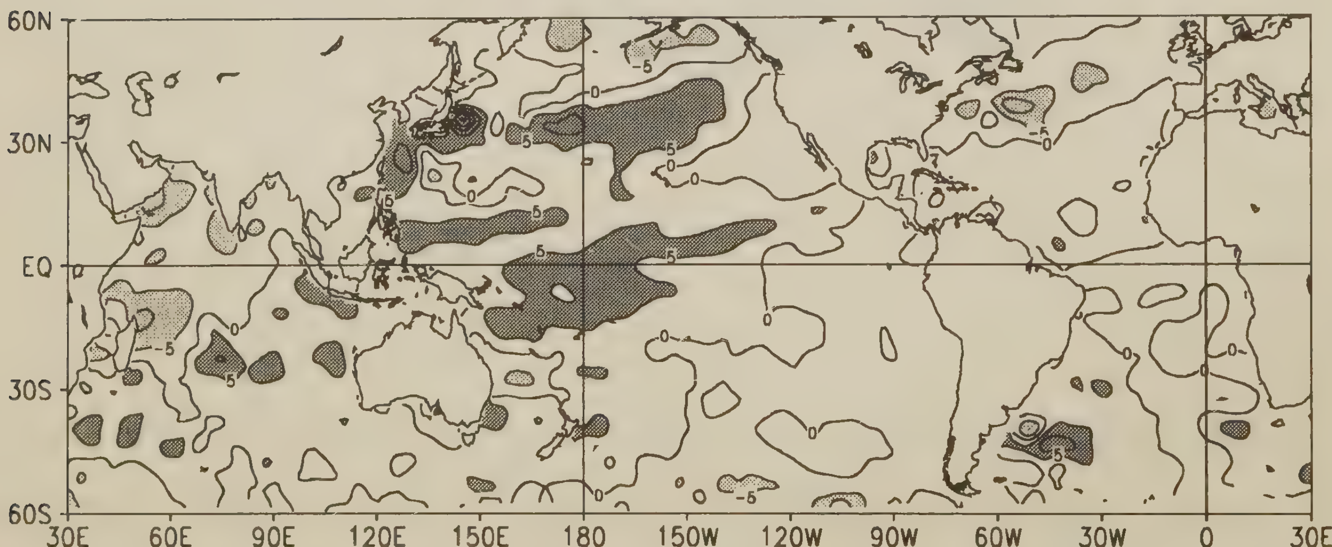
Fig. 22 Depth-longitude sections of temperature (top) and anomalies (bottom) along the equator in the Pacific Ocean for SEP 2001. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (top) and 0.5°C (bottom). Values greater than 28°C in the top panel are shaded. In the bottom panel, values greater than 1°C are shaded and values less than -1°C are spotted. Anomalies are computed from 1987-2000 base period means.

Sea Level Anomalies / Sea Surface Height Anomalies



第 23 図　太平洋月平均海面水位偏差図（2001 年 8 月）

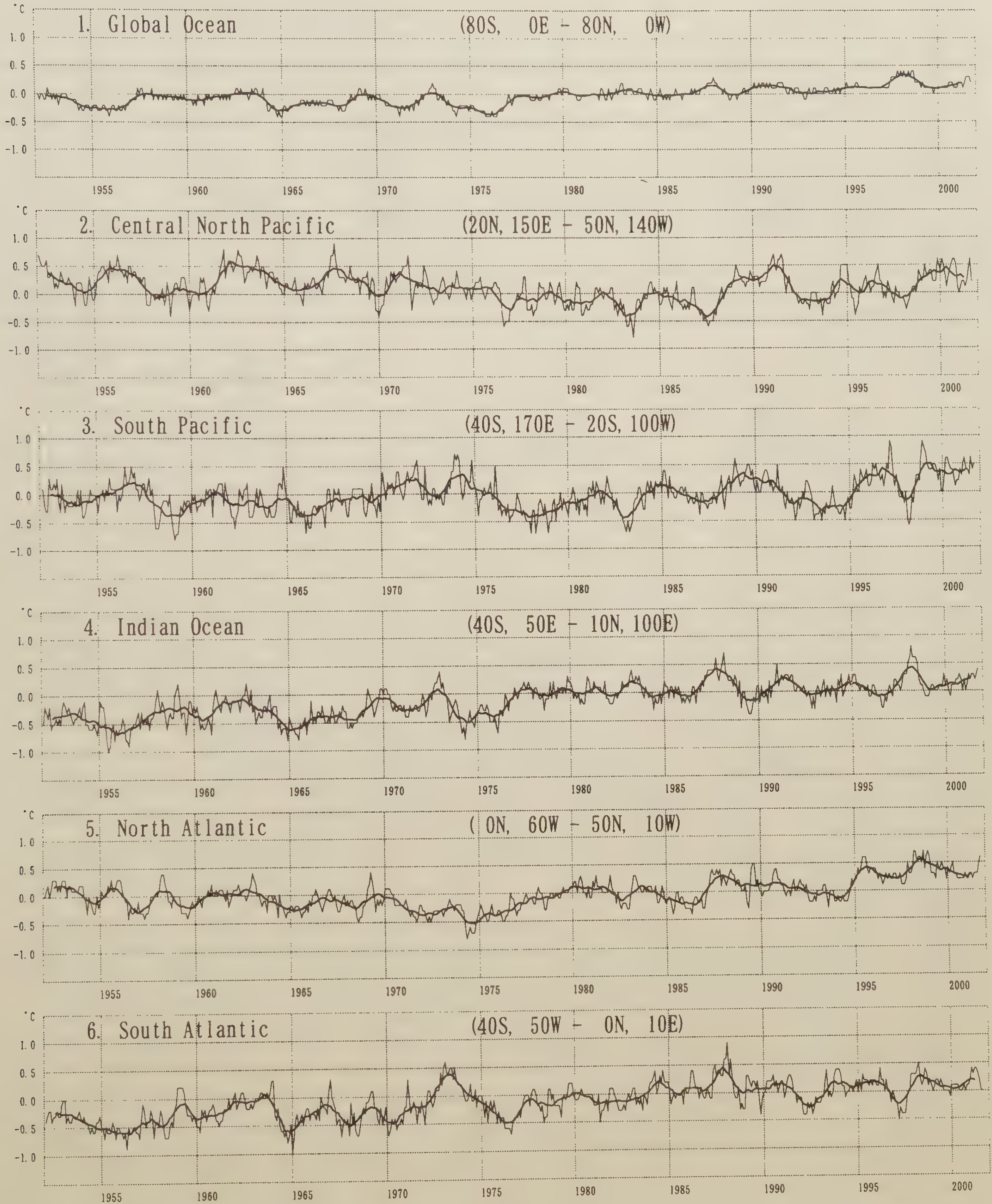
Fig. 23　Monthly sea level anomalies for August 2001 obtained from mean sea level (1975-1995) adjusted for atmospheric pressure. This figure is prepared by the SOC of ISLP-PAC, Department of Oceanography, University of Hawaii.



第 24 図　全球月平均海面高度偏差図（2001 年 8 月）

Fig. 24　Monthly sea surface height anomalies in the global ocean derived from the altimeter data of TOPEX/POSEIDON for August 2001. Contour interval is 5 cm. Positive anomalies exceeding +5 cm are shaded and negative anomalies exceeding -5 cm are spotted. Anomalies are computed from 1993-1998 base period means.

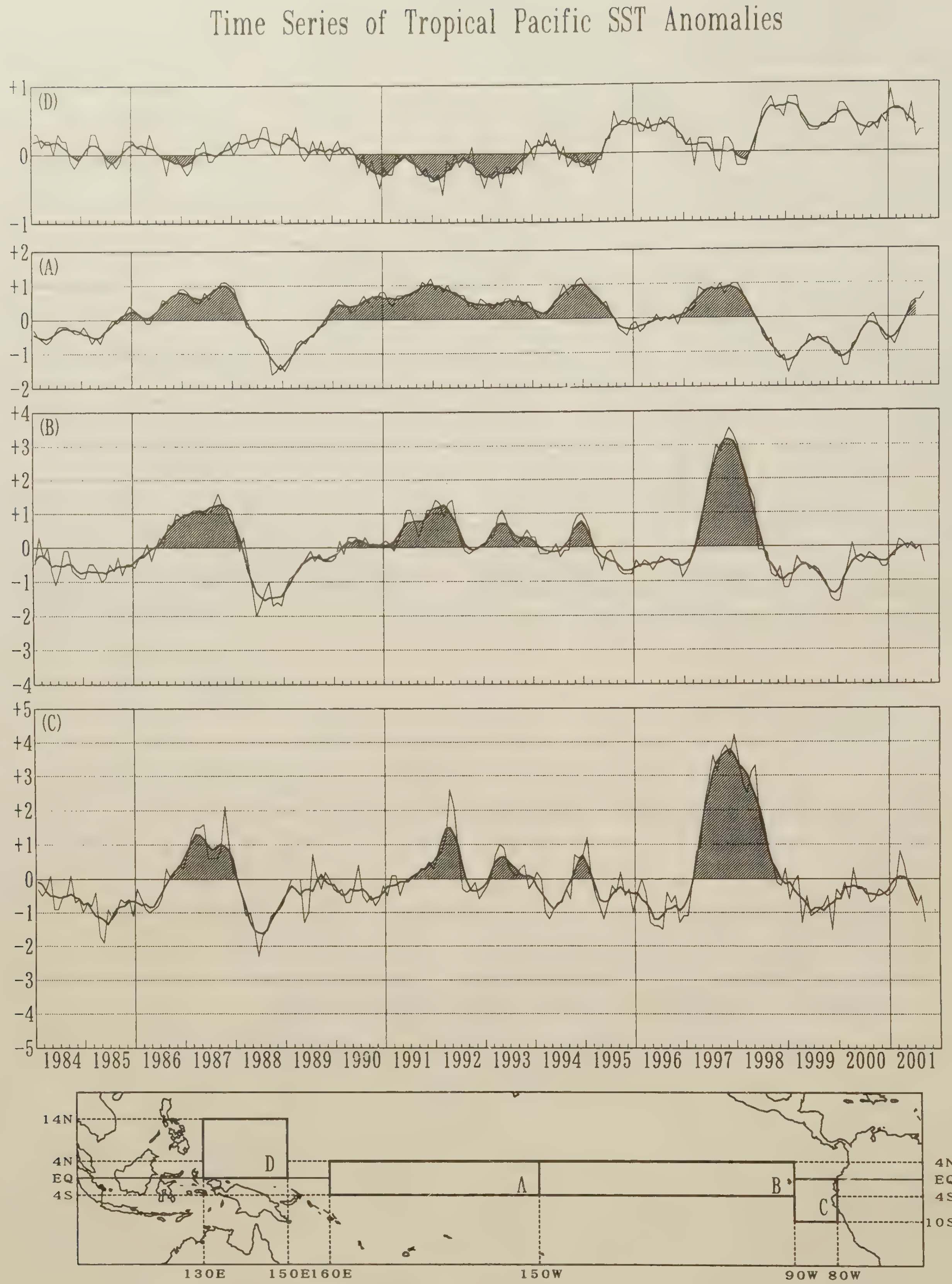
Long-term Variation of Monthly Mean SST Anomalies





第25図 海域平均海面水温偏差の長期変動

Fig. 25 Long-term variations of monthly mean sea surface temperature anomalies (°C) for the areas shown in the right panel. Anomalies are computed from the JMA climatology (1971-2000). Thin lines show the monthly mean and thick lines their 13-month running means.



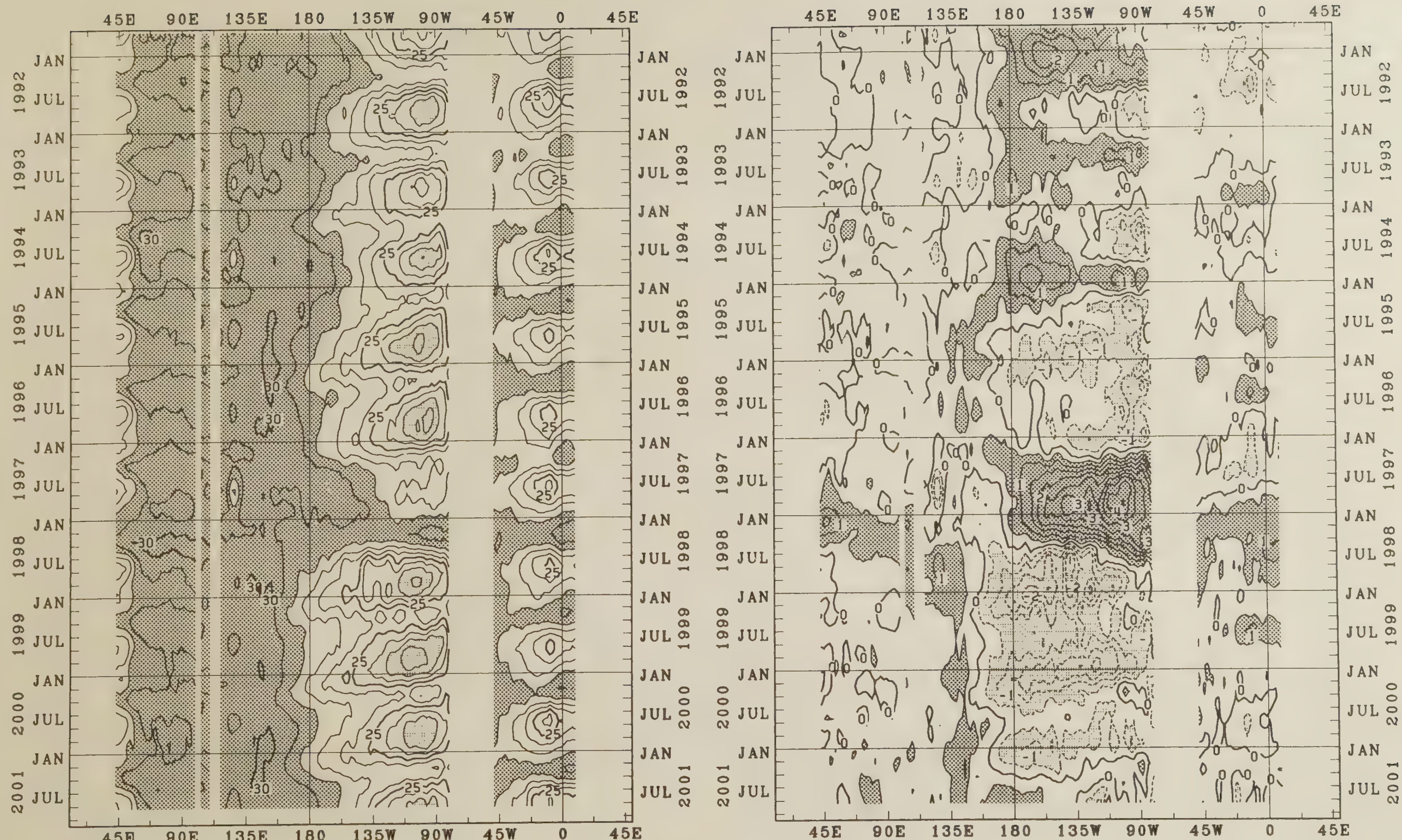
第26図　太平洋熱帯域の海面水温偏差時系列図

Fig. 26 Time series of monthly mean SST anomalies (°C) in the tropical Pacific Ocean for the areas indicated at the bottom panel. Thin lines show the monthly means and thick lines their 5-month running means. Positive anomalies (A, B, C) and negative anomalies (D) are shaded. Anomalies are computed from the JMA climatology (1971-2000).

MONTH YEAR	SEA SURFACE TEMPERATURE AND ANOMALY (°C) REGION D 14N-EQ 130E-150E		REGION A 4N-4S 160E-150W		REGION B 4N-4S 150W-90W		REGION C EQ-10S 90W-80W		SOI	SEA LEVEL PRESSURE ANOMALY (hPa) TAHITI 17-33S 149-37W	DARWIN 12-24S 130-52E
JAN 99	29.3	0.8	26.4	-1.6	24.2	-1.2	23.9	-0.6	1.5	2.2	-1.2
FEB 99	29.1	0.8	26.7	-1.3	25.5	-0.8	25.9	-0.1	0.8	1.8	-0.2
MAR 99	29.3	0.8	27.0	-1.1	26.8	-0.3	26.4	0.1	0.9	0.9	-1.2
APR 99	29.3	0.5	27.3	-0.9	26.7	-0.5	24.1	-1.3	1.6	2.0	-0.5
MAY 99	29.7	0.4	27.8	-0.8	26.4	-0.5	23.8	-0.5	0.2	1.5	1.2
JUN 99	29.7	0.3	28.0	-0.5	25.5	-0.7	21.8	-1.1	0.3	1.2	0.7
JUL 99	29.6	0.3	27.8	-0.7	24.8	-0.6	20.9	-1.0	0.4	1.3	0.6
AUG 99	29.5	0.3	27.8	-0.6	24.0	-0.7	20.0	-0.9	0.4	1.8	1.2
SEP 99	29.7	0.4	27.8	-0.6	23.8	-0.9	19.7	-0.8	0.0	0.6	0.6
OCT 99	29.8	0.4	27.8	-0.6	23.6	-1.1	20.4	-0.5	1.1	1.7	-0.0
NOV 99	29.7	0.4	27.5	-0.9	23.2	-1.5	20.3	-1.5	1.2	1.6	-0.4
DEC 99	29.4	0.4	27.1	-1.1	23.4	-1.6	22.6	-0.3	1.6	2.6	-0.3
JAN 00	29.2	0.7	27.0	-1.0	23.8	-1.6	24.0	-0.5	0.5	1.7	0.6
FEB 00	29.0	0.7	26.6	-1.4	25.3	-1.0	25.9	-0.1	1.2	3.1	0.2
MAR 00	29.1	0.6	26.7	-1.4	26.6	-0.5	25.7	-0.6	1.1	2.1	-0.2
APR 00	29.3	0.5	27.4	-0.8	27.3	0.1	25.7	0.3	1.4	1.5	-0.6
MAY 00	29.7	0.4	27.9	-0.7	26.5	-0.4	24.0	-0.3	0.3	1.2	0.8
JUN 00	29.6	0.2	28.1	-0.4	25.7	-0.5	22.6	-0.3	-0.4	0.8	1.2
JUL 00	29.6	0.3	28.2	-0.3	25.0	-0.4	21.6	-0.3	-0.3	-0.1	0.5
AUG 00	29.6	0.4	28.4	0.0	24.5	-0.2	20.2	-0.7	0.7	0.7	-0.5
SEP 00	29.7	0.4	28.5	0.1	24.4	-0.3	19.9	-0.6	1.0	2.0	0.2
OCT 00	29.7	0.3	28.2	-0.2	24.3	-0.4	20.6	-0.3	1.0	0.7	-1.0
NOV 00	29.8	0.5	27.9	-0.5	24.1	-0.6	21.4	-0.4	1.9	1.6	-1.9
DEC 00	29.4	0.4	27.5	-0.7	24.4	-0.6	22.4	-0.5	0.9	-0.3	-2.1
JAN 01	29.4	0.9	27.4	-0.6	25.1	-0.3	24.1	-0.4	0.8	3.0	1.1
FEB 01	28.9	0.6	27.2	-0.8	26.0	-0.3	25.8	-0.2	1.0	-0.0	-2.7
MAR 01	29.1	0.6	27.6	-0.5	27.3	0.2	27.1	0.8	0.8	1.8	0.2
APR 01	29.4	0.6	28.0	-0.2	27.3	0.1	25.8	0.4	0.2	0.4	0.2
MAY 01	29.7	0.4	28.7	0.1	26.8	-0.1	24.1	-0.2	-0.8	0.2	1.3
JUN 01	30.1	0.7	28.9	0.4	26.3	0.1	22.4	-0.5	0.3	0.3	-0.1
JUL 01	29.5	0.2	29.0	0.5	25.3	-0.1	21.1	-0.8	-0.3	0.3	0.8
AUG 01	29.5	0.3	28.9	0.5	24.7	0.0	20.4	-0.5	-0.6	-0.4	0.5
SEP 01	29.6	0.3	29.1	0.7	24.2	-0.5	19.2	-1.3	0.2	0.3	0.0

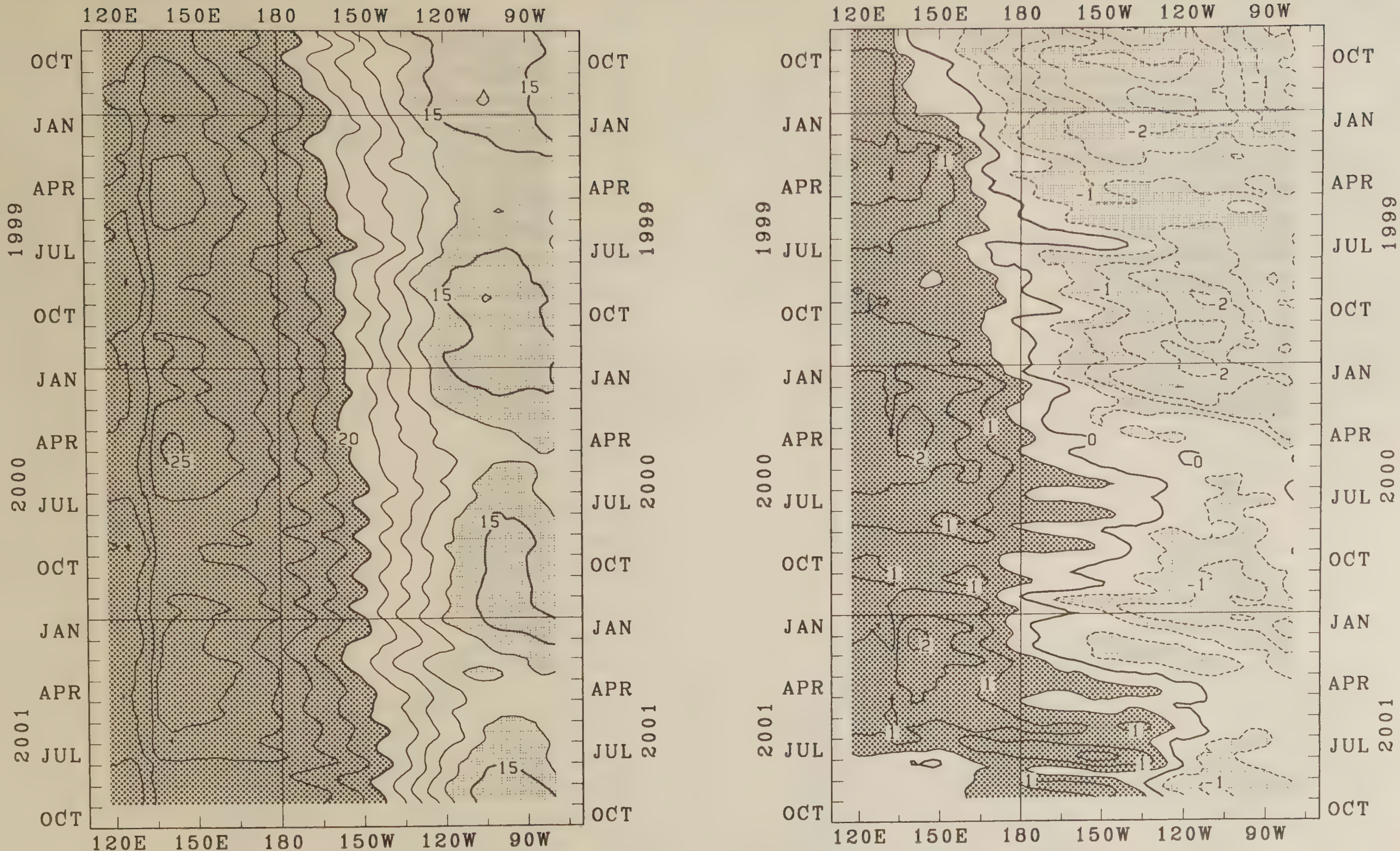
第1表　太平洋熱帯域の大気及び海洋の監視指数

Table 1　Atmospheric and oceanic monitoring indices in the tropical Pacific Ocean



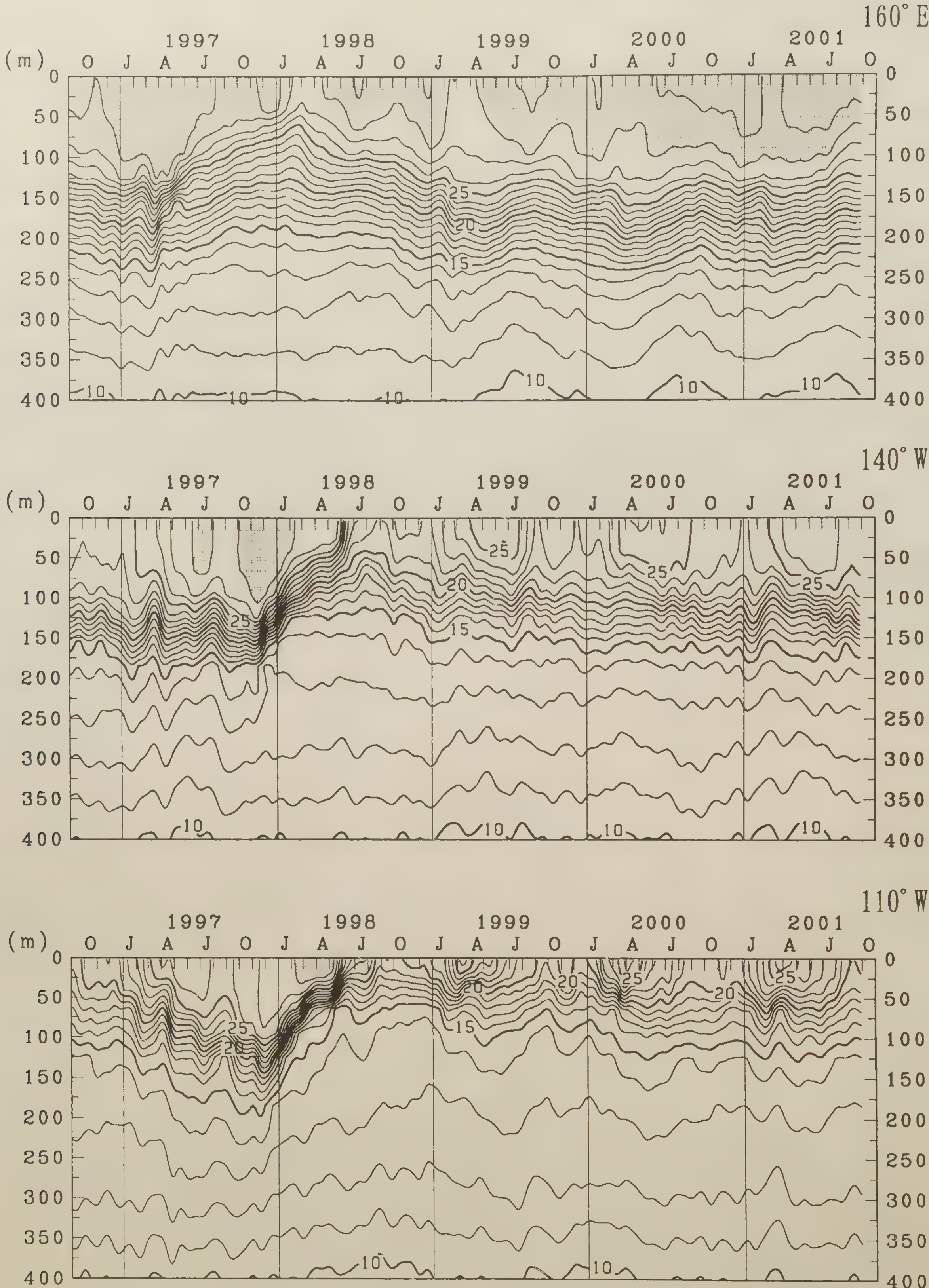
第 27 図　赤道に沿った海面水温（左）および偏差（右）の時間-経度断面図

Fig. 27　Time-longitude sections of SSTs (left) and anomalies (right) along the equator (2 °N-2 °S) in the global ocean. Contour interval is 1 °C (left) and 0.5 °C (right). Values greater than 28 °C are shaded and values less than 23 °C are spotted in the left panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1971-2000 base period means.



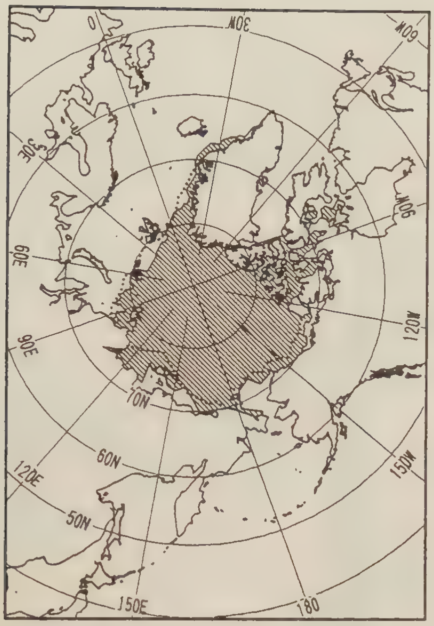
第28図　太平洋の赤道に沿う海洋表層の貯熱量（左）及び偏差（右）の時間－経度断面図

Fig. 28 Time-longitude sections of ocean heat content in the upper 260 m along the equator (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (left) and 0.5°C (right). Values greater than 20°C are shaded and values less than 16°C are spotted in the left panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1987-2000 base period means.



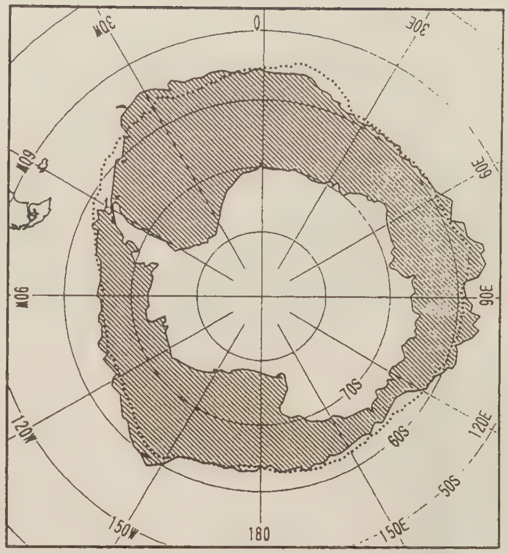
第29図　太平洋赤道域の表層水温の時間－深度断面図
（上：西部、中：中部、下：東部）

Fig. 29 Time-depth sections of equatorial subsurface temperature for the western Pacific (top, 160°E), the central Pacific (middle, 140°W) and the eastern Pacific (bottom, 110°W). Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C. Values greater than 28°C are shaded.



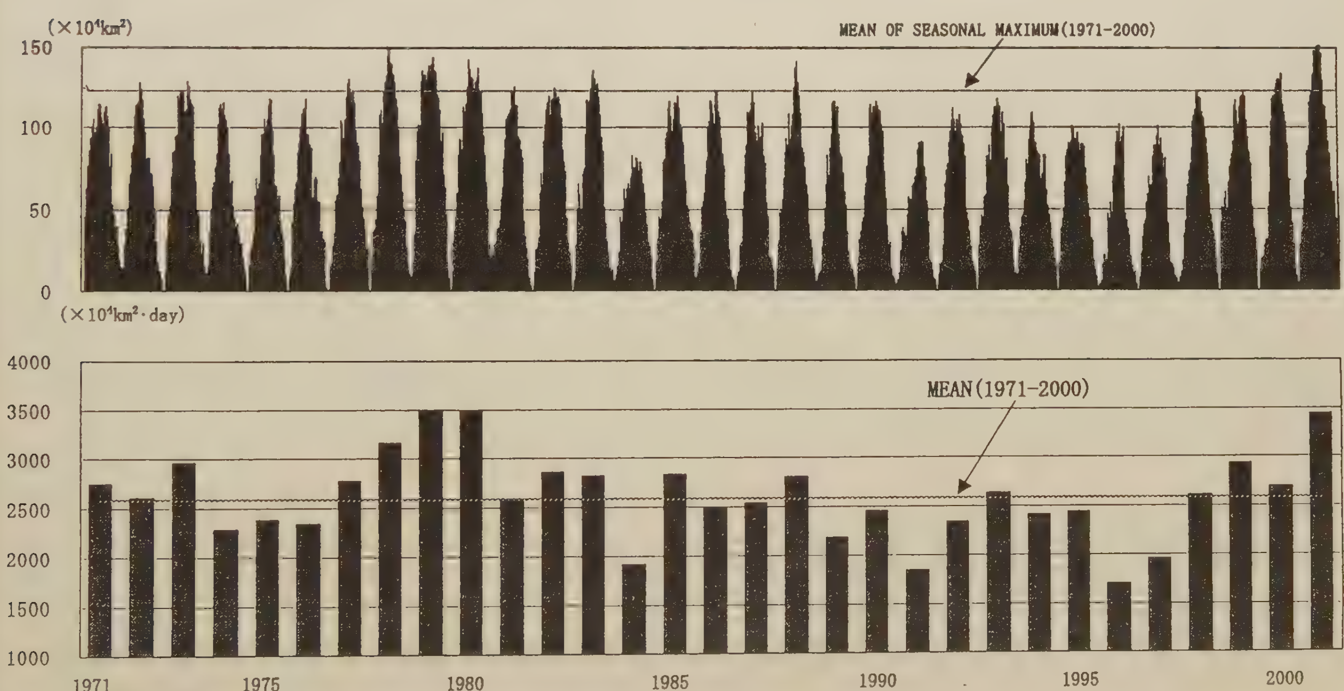
第30-1図　北極域の海氷図（2001年 9月13日）

Fig.30-1 Sea ice chart in the Arctic on 13 Sep. 2001.
The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1972 through 1990.
The data source is the National Ice Center (USA).



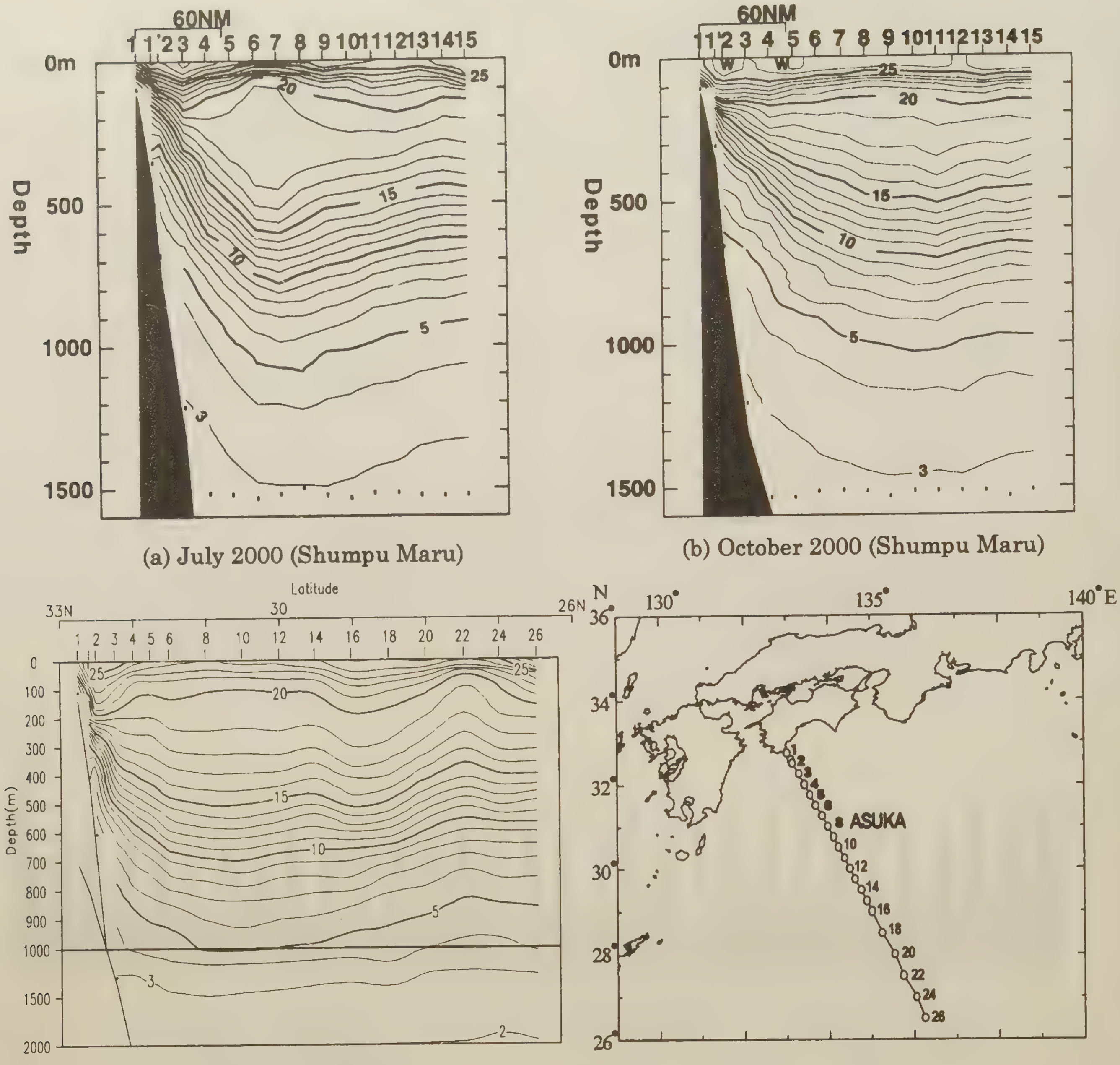
第30-2図　南極域の海氷図（2001年 9月20日）

Fig.30-2 Sea ice chart in the Antarctic on 20 Sep. 2001.
The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1973 through 1990.
The data source is the National Ice Center (USA).



第30-3図 オホーツク海の海氷期の半旬海氷域面積（上段）とその積算（下段）の経年変化

Fig.30-3 Time series of 5-day sea ice extent from December to May (upper) and its accumulation (lower) in the Sea of Okhotsk



(a) July 2000 (Shumpu Maru)

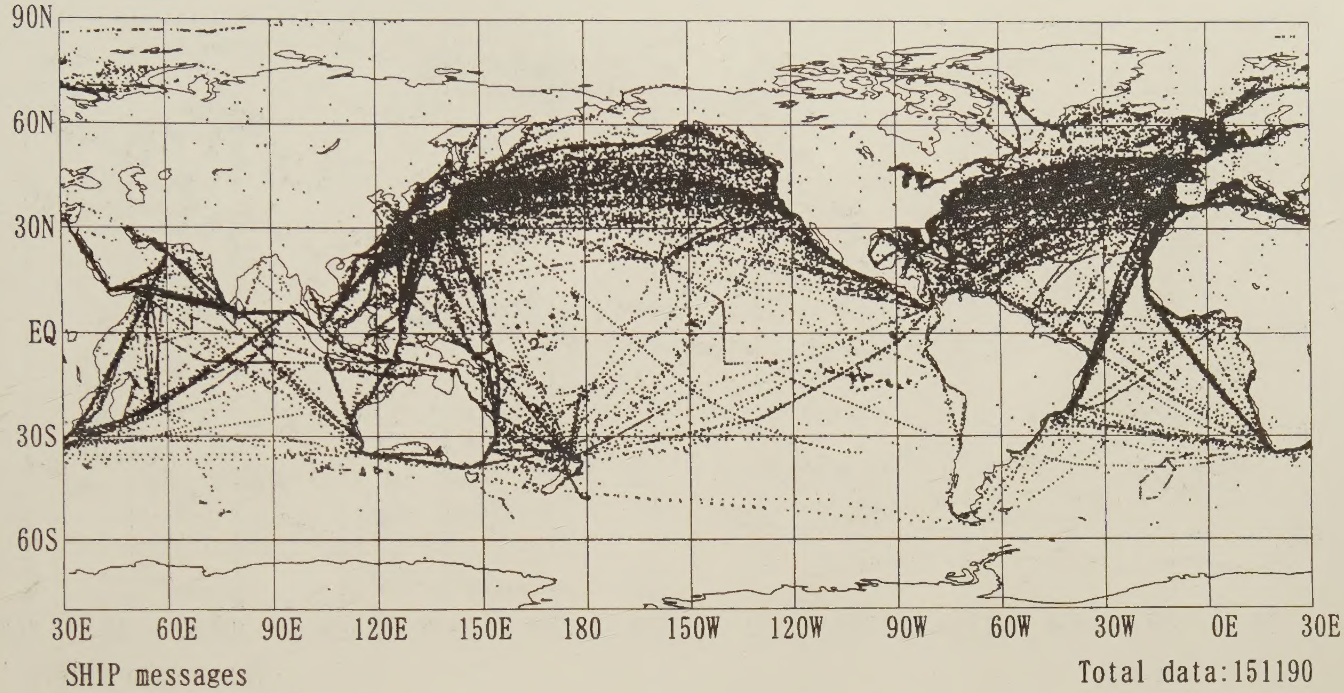
(b) October 2000 (Shumpu Maru)

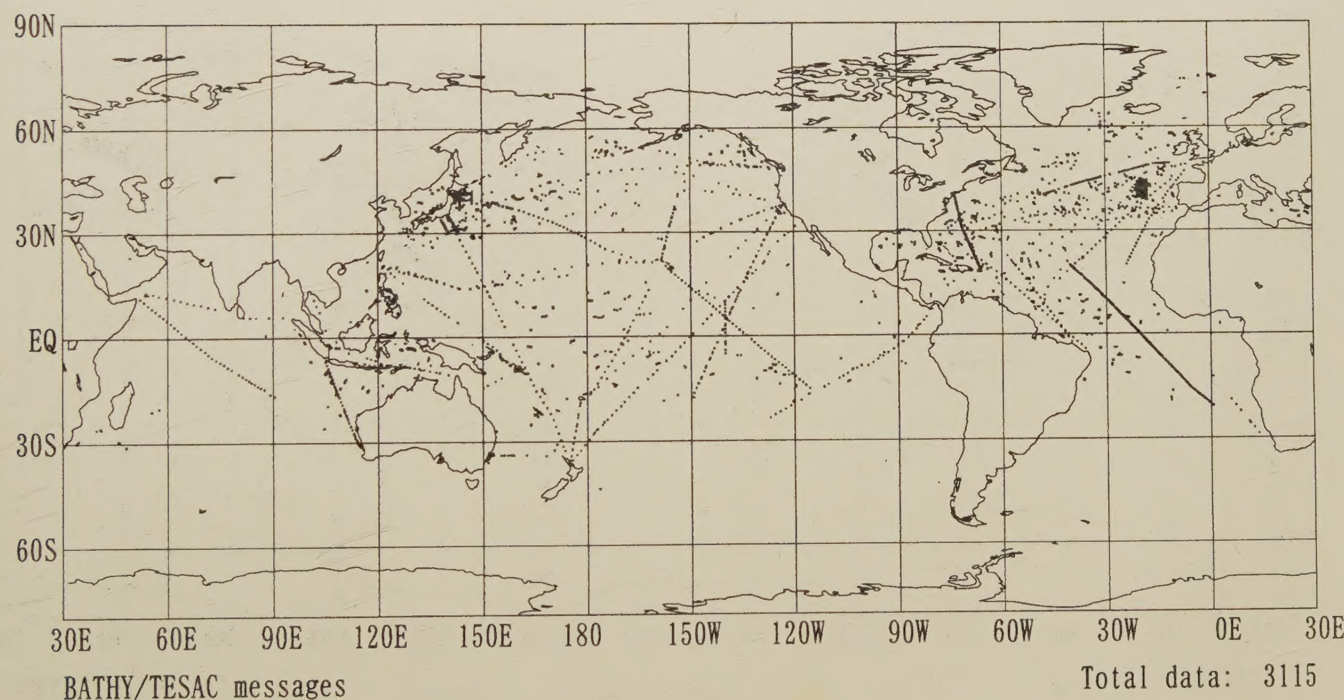
(c) May 2001 (Keifu Maru)

(d)

第31図 神戸海洋気象台春風丸・啓風丸によるASUKA線に沿った水温鉛直断面図
(a)2000年7月，(b)2000年10月，(c)2001年5月，(d)ASUKA線の位置図

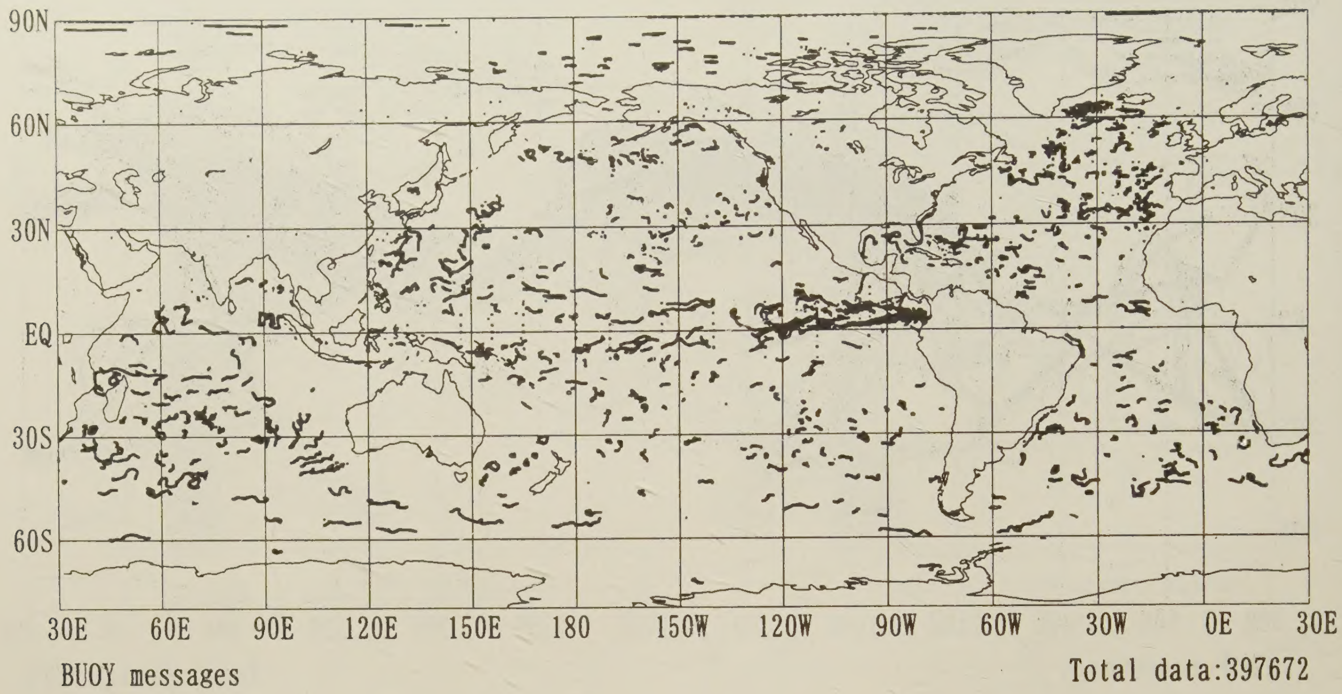
Fig. 31 Vertical sections of temperature (℃) along the ASUKA line observed by R/V Shumpu Maru and Keifu Maru of Kobe Marine Observatory of the Japan Meteorological Agency. (a) July 2000, (b) October 2000, (c) May 2001 and (d) location of the ASUKA line.

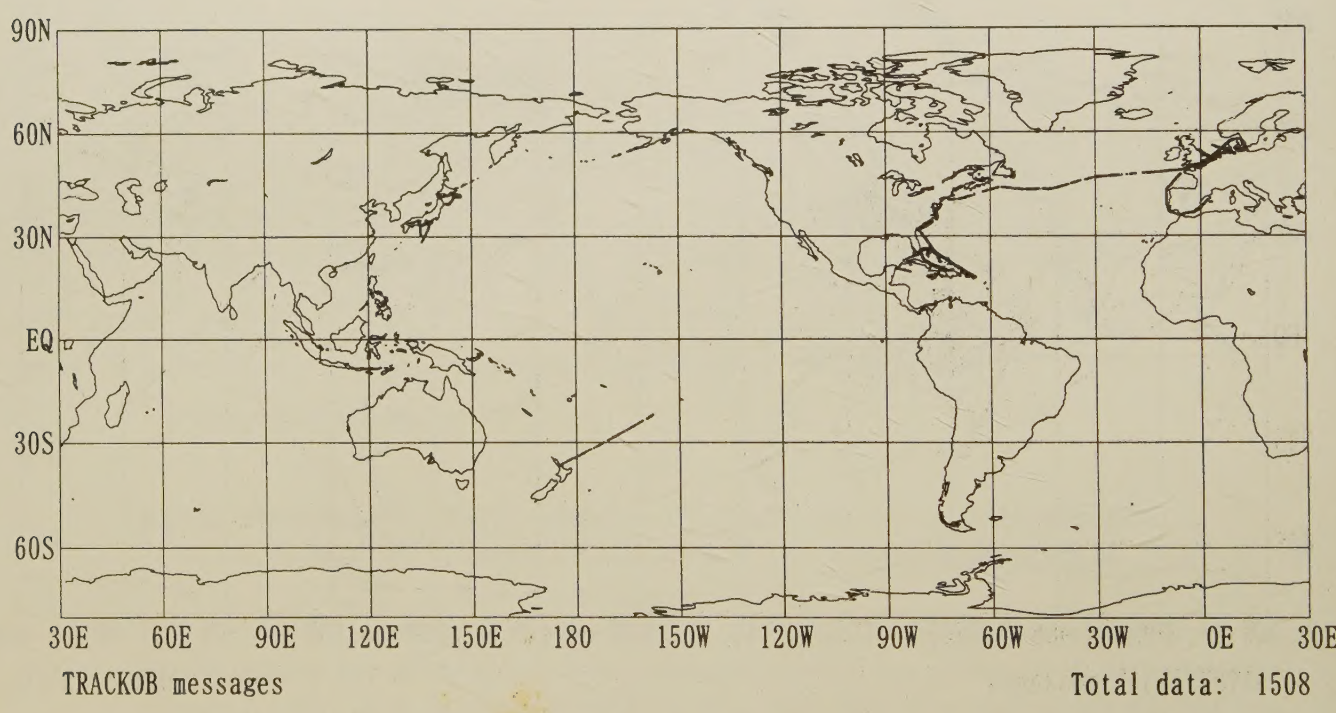




第32-1図　測点分布図(2001年 9月)

Fig. 32-1 Geographical distribution of SHIP messages (SST data, top) and BATHY/TESAC messages (subsurface temperature data, bottom) for SEP 2001.





第32-2図　測点分布図(2001年 9月)

Fig. 32-2 Geographical distribution of BUOY messages (buoy drift and SST data, top) and TRACKOB messages (ship drift and SST data, bottom) for SEP 2001.

気 象 庁 海 洋 月 報

Monthly Ocean Report

September 2001 (No. 105)

本月報掲載の 2001 年 9 月のプロダクトには、気象庁が観測したデータ及び GTS（全球気象通信網）を通じて入手した国際気象通報式による通報のほか、下記の機関等から提供いただいたデータを使用しています。御礼申し上げます。

防衛庁、水産庁、海上保安庁

水産総合研究センター

海洋科学技術センター、（社）漁業情報サービスセンター

東京大学

水産試験場等（北海道、青森県、岩手県、宮城県、秋田県、山形県、福島県、茨城県、千葉県、東京都、新潟県、富山県、石川県、福井県、静岡県、愛知県、三重県、京都府、兵庫県、和歌山県、鳥取県、山口県、徳島県、高知県、佐賀県、宮崎県）

（順不同）

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